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ABSTRACT

The competency Based Training Project was designed to validate the Teaching Skills Inventory (TSI) and assess its utility as a tool for training parents to implement educational and therapeutic activities with their handicapped children. Four studies evaluated the TSI. Teachers and physical and occupational therapists were taught to rate mothers' teaching via the TSI. Professionals' skills were also assessed with the inventory and found to be at criterion level. Teachers then used the inventory in a study in which mothers were instructed on the content of the inventory. Mothers' skills showed significant improvement over the course of training. In another study involving a different sample of mothers, self-modeling versus the standard training techique were analysed, indicating a trend favoring the self-modeling approach to training mothers. The TSI was revised twice during the course of the project, with the final version containing nine rating and four behavioral count items. Procedures for training persons to use the TSI are described. (CL)

Working Papers in Developmental Disabilities

Meyer Children's Rehabilitation Institute/University of Nebraska Medical Center

FINAL REPORT

COMPETENCY BASED PARENT TRAINING PROJECT

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Final Report

Competency Based Parent Training Project

OSE Project # G007902255

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Abstract

The overall objective of the Competency Based Training Project funded by Special Education Programs was to further validate the Teaching Skills Inventory (TSI) and to assess its utility as a basis for focusing and refining procedures in training parents to implement educational and therapeutic activities with their handicapped children.

Several studies were done in order to accomplish these objectives. Teachers and physical and occupational therapists were taught to use the TSI to rate mothers' teaching skills. Professionals' skills were also assessed with the Inventory and found to be at criterion level. Teachers then used the Inventory in a study in which mothers were given instruction directed at the content of the Inventory. Mothers' skills showed significant improvement over the course of training. Two approaches (use of self-modeling versus the standard technique) to training mothers were compared with a new population of mothers. A trend favoring the self modeling technique was apparent, however, in this abbreviated training a significant improvement in mothers' skills was not found.

Over the course of this project the Inventory was revised twice. The initial version of the TSI contained 18 rating and five behavioral count items. The scale for the rating items was seven points with all but points 2 and 5 defined with statements. The final version of the TSI contains nine rating and four behavioral count items. Procedures for training persons to use the rating scale are described.

Future directions for use of the scale for program evaluation of parent mediated infant and preschool programs and for research on parent training are discussed in this report.

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Objective

The overall objective of this project was to further validate the Teaching Skills Inventory (Rosenberg, Robinson, & Bell, Note 1, then titled Parent Teaching Skills Checklist) and to assess its utility as a basis for focusing and refining procedures in training parents to implement educational and therapeutic activities with their handicapped children.

Background and Rationale

Most children grow to maturity in families through an almost endless sequence of exchanges with their parents. It is in these intimate and emotionally charged family groups that children develop their first and often most lasting loyalties, their primary language, their manners, their mores, and their earliest conceptions of the physical and social contexts in which they live. Considering the incredible number and complexity of ideas and activities that a child must master in order to develop normally, it is quite remarkable that one or two untrained adults can, with minimal professional input, usually provide an environment in which children thrive. Of course, not all children thrive under the conditions that typically promote child development nor do all parents seem to be able to create an environment that is conducive to child growth. Under these circumstances professionals become more extensively involved in child care within an individual family.

Historically, educational intervention to enhance child development was committed to the direct treatment of the child. Professional interactions with the parents were often quite limited. Moreover, research focused primarily on the child's developmental needs and changes in the child's behavior. Over the past 15 years, however, there has been increasing participation of parents in treatment of their own children, specifically for problems of social-emotional development (Berkowitz & Graziano, 1972; O'Dell,

1974; Tavormina, 1974) and for delays in intellectual development (Bricker, 1970; Bristol & Gallager, 1982; Bronfenbrenner, 1975; Radin, 1972; Shearer & Shearer, 1976; Stedman, Note 2; Weikert & Lambie, 1968; Welsh & Odum, 1981). There has also been increased interest in understanding the impact of parenting on child development (Bell, 1968, Clark-Stewart, 1973; Freeberg & Payne, 1967; Hunt, 1976) and the impact of handicapped children on their caregivers (Beckman-Bell, 1981; Ramey, Beckman-Bell, & Gowen, 1980).

To a large extent, the rationale for the emphasis upon teaching parents to work effectively with their handicapped children came with the realization that the necessary number of professionals trained to meet the educational and treatment needs of children with handicaps was not available (Sontag, Burke, & York, 1973), particularly as programs developed for infants and toddlers. Concern over what levels of professional involvement are feasible, both with respect to program costs and availability of trained personnel, has been accompanied by a recognition, that for infants and toddlers, the typical context for learning generally occurs in the home through interaction with family members. Thus, our efforts toward developing interventions for young handicapped children are guided by the premise that the maximum benefit of intervention for any handicapped child will come from a program which is mediated by parents and other family members. We feel that this assumption is justified on the basis of literature regarding the long term effectiveness of early intervention (Bronfenbrenner, 1975; Schaefer, Note 3) and on the philosophy that our obligation is not just to handicapped children but also to their families. This assumption recognizes that, in some cases, the short-term costs of a parent mediated program will be greater than the costs of a program that is implemented by professionals. As a result, some may argue against assisting families who are difficult to teach. It is our view

that this is an extremely shortsighted analysis of the problem. The long-term emotional and financial costs associated with a failure to provide assistance to all families with a handicapped child can be immense. Consequently, we argue that even marginal improvements in family and child functioning are likely to be valuable over the long term.

Evaluation of Early Intervention Programs

As intervention programs for young handicapped children have become more prevalent, the need for tools to evaluate the effectiveness of specific intervention strategies have received increased attention (Garwood, 1981; Sheehan, 1982). A major point of focus in the literature has been on the difficulty in assessing the impact of early intervention on child development. Specifically, there has been increasing disenchantment with IQ as a measure to evaluate the effects of intervention. As more early intervention efforts have been directed at the moderately and severely handicapped child, largely through the Special Education Program Handicapped Children's Early Educational Program network, there has been even more dissatisfaction with existing norm referenced, global measures as tools to assess effectiveness of intervention (Sheehan, 1982). The goal of intervention, especially with children with moderate and severe handicaps, is likely to be a change in specific child behaviors in the areas of communication, motor, cognitive, and social development. IQ, for most of the children, does not provide a sufficiently focused description of child functioning. Thus, means for assessing the accomplishment of this goal are likely to be criterion referenced assessments, such as the Developmental Programming for Infant and Young Children (Schafer & Moersch, 1977), the Meyer Children's Rehabilitation Institute Checklist, Portage Project Checklist, and Learning Accomplishment Profile (Sanford, 1974), to name just a few. For children with physical and sensory handicaps,

even criterion referenced assessments may be inappropriate since the necessary responses are not possible within their physical or sensory capabilities (Robinson & Rose, in press). For such children, procedures have been developed to adapt items in order to maintain consistent developmental content and to allow for the adjustment of required responses (DuBose & Robinson, Note 4; Haeusserman, 1958; Robinson & Robinson, 1978; Robinson, in press; Krenzer, Note 5; Anderson, Krenzer, & Robinson, Note 6). Thus, assessment of and procedures for evaluating effectiveness of intervention with young children have moved in the direction of more and more precise and specific behavioral measurements. This movement is very appropriate given that the primary goal of intervention with a child is to produce change in the child's behavior in specific developmental domains.

Parent mediated intervention for young children with handicaps promotes child growth by enhancing the capacity of caretakers to provide educational and habilitative environments for children in the context of the child's own home. Efforts to evaluate procedures for training parents to provide home educational programs have not been precise. Rather, the assumption has frequently been that changes in parent skills and the capacity to provide educationally habilitative environments will be reflected in measured changes in child development. While such change in child behavior is certainly the ultimate criterion for judging the effectiveness of parent mediated intervention, direct assessments of child behavior are not likely to be precise or prescriptive with respect to the strategies needed to refine procedures for parent training.

We are suggesting that the same strategies that have been applied to the development and refinement of specific instructional procedures for working with children (Bricker, 1970) need to be applied to the development and

refinement of specific instructional techniques for training parents to work with their own children. In a manner that is similar to the trend toward criterion referenced assessments of changes in child behavior, we are suggesting competency based training procedures for parents. Moreover, these procedures would be initially evaluated and refined through the use of an assessment of parent teaching skills, specifically the Teaching Skills Inventory (Rosenberg, Robinson, & Bell, Note 1).

Pertinent Literature on Parent-Child Interaction

In this review we will examine the rationale for training parents of developmentally delayed infants in early intervention programs, review and compare models of parent-child interaction as they relate to child development, and report on research designed to evaluate the utility of current parent-child interaction models as guides for developing parent implemented early intervention programs for developmentally delayed infants.

Currently, there are two major approaches to early intervention. In one approach, professional intervention is focused on the child in a day care, school, or clinic setting (e.g. Bricker & Bricker, 1976; Heber & Dever, 1970; Robinson & Robinson, 1978). In the other approach, professional intervention is focused on the parent and the aim is to teach child rearing skills that can be used in the home to foster and maintain child development (e.g., Bromwich, 1981; Karnes, Teska, Hodgins, & Badger, 1970; Shearer & Shearer, 1976; Weikert & Lambie, 1968).

Research on the efficacy of these two approaches in early intervention indicates that day care and nursery school interventions result in short-term intellectual gains but home-based programs which focus on parental child rearing skills produce more enduring effects (Bronfenbrenner, 1975; Heber & Garber, 1975; Haskins, Finkelstein, & Stedman, 1978; Radin, 1972; Weikert &

Lambie, 1968). In his review of early intervention research, for example, Bronfenbrenner (1975) concluded that educational intervention during the first three years is developmentally most profitable when it emphasizes mother-child interaction around activities designed to foster the child's development. In contrast, intellectual gains produced by preschool "child-centered" programs fade when the program is terminated. This outcome is attributed to home situations wherein continued child learning and development are not supported (Bronfenbrenner, 1975; Gray & Klaus, 1970; Schaefer, Note 3). Consequently, it is argued that early intervention programs must provide the family with parenting skills, motivation, and energy as well as developmentally appropriate curricula (Bronfenbrenner, 1975; Schaefer, Note 3).

Given that specific parental skills are necessary for continued child development, it is not surprising that programs which do not enhance the parents' capacity to foster and sustain their child's development fail to produce gains which substantially outlast professional intervention. Conversely, home-based programs which focus on parent-child interaction in specific learning situations and activities make substantial gains which endure for years after the intervention is ended.

On the whole, therefore, the evidence indicates that parents can be trained to modify their child's behavior with respect to specific educational and developmental objectives. There is, however, also evidence that while family-based intervention programs are generally successful, even they sometimes fail to produce lasting changes in child behavior and development (Bromwich, 1981; Fraiberg, 1975). The origin of this variability is not well understood and little systematic study has been devoted to explaining the varying degrees of success and failure observed when individual parent-child dyads are observed. Recent reviews of the parent mediated intervention

literature contain few references to studies which attempt to account for the infant and parent who do not perform well together.

Models of parent/child interaction. Equally unavailable are alternative procedures that are designed to succeed where the standard approaches have failed. A possible point from which to begin the construction of such procedures lies in the already substantial literature on how parents interact with their children. This literature indicates that a variety of interaction patterns are conducive to accelerated child development in normal parent-infant dyads. In addition, the study of infants who are developmentally "at risk" indicates that interactions that occur between parent and infant greatly affect the extent to which the child develops normally (Sameroff & Chandler, 1975). The foregoing suggests that the competence of both normal and "at risk" infants may be enhanced by certain interaction patterns. Therefore, there is great value in identifying growth accelerating interaction patterns for use with less skillful mothers and handicapped infants.

At this time, however, the generalization of findings derived through the study of relatively normal infant-mother pairs to dyads which have disabled infants has not been demonstrated. The problem, therefore, is to evaluate parent-infant interaction within a parent mediated intervention program in order to determine the extent to which previously reported aspects of these interactions are related to the development of disabled infants.

One way to interpret the results of studies of parent-child interaction styles and early intervention is that child development outcomes in normal children correspond to specific parental childrearing, caregiving, and teaching skills. Thus, enduring advances in child development will occur when early intervention programs are designed to foster parental skills.

Generalizing this interpretation to development of delayed infants, we propose that child development outcomes depend upon explicit parental skills and that more delayed infants require more skilled parents to realize a given developmental outcome. The need for parents of handicapped children to develop greater skills than parents of normal infants stems from the assumption that disabled infants require more refined program steps to learn. Evidence that retarded children learn more slowly and require different teaching skills is the basis for this assumption. Briefly, it can be said that they require a greater number of repetitions to learn (e.g., Zeaman & House, 1963), require finer gradations for learning to generalize from one test situation to another (Sidman & Stoddard, 1966), and frequently, because physical disabilities interfere with their ability to manipulate objects, they also require task modifications in order to permit them opportunities to learn (Haeussermann, 1958; Robinson & Fieber, Note 7). Unfortunately, specific facilitating parental skills have not been examined in detail. For example, Bradley and Caldwell (1976), in an effort to show how changes in infant mental test performance accompany changes in the home environment, report: "Mothers whose infants improve in mental test performance not only encourage and challenge the child to develop new skills but also provide the child with the kinds of play materials needed for development " (p. 96). But the authors do not describe how the mothers "encourage and challenge the child" nor how they "select and provide materials."

Several researchers have attempted to identify the characteristics of highly effective teaching strategies for handicapped children. Results of recent studies support our argument that parents who are highly successful in teaching handicapped children utilize teaching techniques that differ in some respects from those used by parents of non-handicapped children, particularly

in how the parent guides the child's responses in a learning situation. Smith, Filler, Bricker, Robinson, and Vincent-Smith (Note 8) found that cue placement and limiting of choices in a match-to-sample learning task were more extensively used by teachers and mothers when they were working with retarded children than when these same adults worked with non-handicapped children.

Filler (Note 9) found that children whose mothers structured tasks, guided responses, and praised correct responses learned more rapidly than children whose mothers used only praise for correct responses. This suggests, once again, that developmentally disabled children profit from skillful coaching by their parents. As of yet neither long sequences of parent-child interchanges nor the strategies parents use to maintain child involvement in an activity has been studied. In addition, only limited tasks, situations, and measures have been used in the study of the problem.

In the present research, specific aspects of parent-child interaction in families with developmentally delayed infants were studied. Most investigators have shared this approach to parent-child interaction. Each, for example, would agree that the pattern of parent-child interaction influenced in the course of child development and the development of parent-child interaction must be a principal focus of early intervention designed to foster and maintain child development. When the investigators differ, they differ in matters of detail, style, or emphasis but they do not predict contrary outcomes nor are they at cross-purposes. The importance of temporal aspects of parent-child interactions, for example, appears in Bell's (1970) emphasis on reciprocal reinforcement, and Ainsworth's (1972) emphasis on maternal sensitivity: i.e, each considers quick, contingent, differential maternal responses to the details of child behavior a basic feature of effective parent-child interaction, particularly as that interaction is

related to child development outcome. The various approaches, therefore, can be combined to provide a more comprehensive evaluation of the ways in which particular features of parent-child interaction are related to child development.

Initial work on parent teaching style. Our initial efforts to develop an assessment of use with specific parental teaching strategies were based upon the work of one of the authors and her colleagues (Filler & Bricker, 1976; Filler, 1976; Robinson & Filler, Note 10; Smith, Filler, Bricker, Robinson, & Vincent-Smith, Note 8). This work involved the development and modification of a parental teaching style scale that reflected skillful use of reinforcement and learning principles. Specifically, some of these strategies included: verbal instructions containing specific information; techniques utilizing limitations of choices; physical prompting and guidance; verbal and physical positive feedback to correct responses; approximations of correct responses, and corrective feedback to incorrect responses. Ratings of videotaped segments of mothers working with their children showed that it was possible to rate with some reliability the frequency of these teaching strategies on the part of the mothers and the frequency of correct, approximation of correct, and incorrect responses on the part of the children. Such ratings, however, generally required three viewings of the tape in order to reliably rate all categories of behavior; thus, five minutes of tape required 20 to 25 minutes of rating time. The situations in these studies all involved use of highly structured test situations and the range of developmental levels of the children studied was over a span of about 18 months.

Development of the Teaching Skills Inventory

The studies carried out in this project involved the further development and validation of the Teaching Skills Inventory (TSI). The Teaching Skills Inventory was developed as a dependent measure to evaluate the effectiveness of instruction provided to parents regarding developmentally appropriate activities to be carried out with their children. While the typical dependent variable in evaluation of such intervention programs is child progress in the relevant domain of development, we felt that due to characteristics of our population of infants, one-third being children with severe to profound handicaps, child progress alone would tend to underestimate the actual benefits of such intervention. We argued that a measure of change could be the use by parents of specific teaching strategies and that such a measure would be an important indication of the effectiveness of an intervention program. Initial work on the TSI by the investigators involved specification of items to be included in the scale, collection of videotape segments of parents working with their own children, training of raters in the use of the scale, rating of videotape segments, and analysis of results of ratings. This work was done under an Office of Special Education grant titled the Parent Prediction Performance Study II (Robinson & Rosenberg, Note 11). Findings from the work indicated that the TSI had good reliability and that it was capable of detecting changes in parents skills.

Assumptions

Assumptions made in developing items for the skills rating system included:

(1) Necessity of a developmental match. The first assumption, and perhaps the most important one to us, recognized the necessity of a "match" between task demands and child performance levels in order for an optimal

teaching situation to occur. This assumption was primarily based upon the work of Hunt (1965), who has written about the "problem of the match" and its relationship to intrinsic motivation. We were assuming that selection of objectives to be taught and the activities used as the context for teaching these objectives should be based upon the child's current developmental level. We also assumed that the objectives should represent a new level of difficulty that is manageable for the children in a fairly short period. The items on the scale whose inclusion was guided by this assumption are:

Developmental appropriateness of nonverbal instruction. The maternal behaviors rated within this category include the use of gestures and demonstrations as a means of communicating to the child what he is supposed to do. The rater is asked to make a judgment based upon knowledge of the child's developmental level as to whether such gestures and nonverbal cues are understandable and, consequently, can be considered functional for the child.

Changes task. This item is related to the problem of the match assumption since we feel that a decision to switch from one task to another in a teaching situation with an infant, toddler, or preschooler should be related to a child's expression of interest in the task at hand. If a child is playing with a toy in what, for him, is a reasonably complex manner, it is not appropriate to change the task to something else abruptly simply because the teacher or parent has another agenda in mind. However, if the child's play has become excessively repetitive or he demonstrates loss of interest, it is appropriate to change.

Conversion of child behavior into a more complex behavior. In order to make this judgment, the rater looks for evidence that the mother utilizes opportunities to challenge her child to perform more complex activities. For example, if a child is demonstrating functional use of an object such as a

cup, she might present a doll and encourage the child to extend functional use to a more complex situation. This item follows from the assumption on the necessity for a match between child developmental level and a "challenge," in that the context for a challenge is a situation which builds upon the child's current expression of interest and skill.

A task's developmental appropriateness. In this item the rater is asked to determine whether the tasks selected by the parent are accurately matched the child's developmental level. This, of course, necessitates some familiarity on the rater's part with the child's level of developmental functioning, information which is available to both the parent and the rater.

The degree to which the objectives of tasks presented by the parent are apparent to the rater. In this item the rater is asked to judge whether the tasks the parent presents appear to have an objective or focus. This is interpreted very broadly since an objective may involve simply having the child look at or visually track an object.

Complexity of responses for child's developmental level. This item involves a judgment by the rater as to whether the child's behavior reflects responses at a level of complexity that suggests that the child has been presented a manageable challenge and that, in responding, he has met that challenge.

(2) Responsivity. Our second assumption regarding effective teaching strategies relates parental responsivity and sensitivity to the child's interest and affective state at a given time. We are assuming that, for optimal interactions, the parent's behavior should evidence awareness of the child's interest and state at a given time. This awareness is demonstrated through adjustments in the structure and content of a teaching session to the child's interest and state. Considerable evidence has accumulated to show

that responsivity and sensitivity are characteristics of competent parents. The items which relate to this assumption include:

Discrete versus unstructured session. The extremes in this dimension, highly structured arrangement and sequence of tasks versus free flowing development, relates in part to stylistic differences. Ideally we see the need for a sensitive balance between structured situations, where the parent has a specific agenda to accomplish, and more free flowing situations, where the parent takes cues from the child's behavior in response to opportunities for expanding tasks and task requirements.

Tracking. In this item the rater is asked to judge how responsive the parent is to the child's mood. Implicit within this rating is a judgment as to whether the parent is appropriately responsive. For example, a child may begin to give cues that he is becoming bored with a particular task; in such cases if the parent changes the task, ideally before a confrontation occurs, then the parent would be considered to exhibit appropriate responsivity to the child. Inappropriate responsivity would include allowing the child to entirely dictate the content of a session in a negative manner, and making no new demands on him because he refuses new materials. Alternatively, complete unresponsivity to child's interests and moods would be illustrated by persisting with a task that the child does not like and perhaps using restraint and physical guidance as a means for eliciting on-task behavior.

(3) Active versus Passive Responding. The third assumption that we made in developing items for this scale was that the most appropriate strategy for teaching a young child consists of arranging situations to maximize active trial-and-error exploration rather than guided performance on the part of the child. This principle applies particularly to tasks when any one of several approaches might be successful, so a parent has the freedom to let the child

discover his own way of accomplishing the task. An example might be the use of a string attached to a toy as a tool to get the toy. The task is to get the toy: the child could pull the string hand-over-hand or perhaps pull once on the string by extending his arm backwards, thus bringing the toy closer. Either strategy will work and the child may discover his own best approach. We feel that allowing exploration is especially important with infants and toddlers who generally resist attempts to physically guide them through activities.

Modification of task. This item involves a judgment as to whether the parent modifies tasks in ways that assist the child's accomplishment in appropriate situations. An example of this strategy can be seen in a motor imitation task. The rater would note whether the parent changed the modeled behavior to one the child has performed when efforts to elicit imitation of a novel behavior are unsuccessful. Thus, the shaping strategy is one of adjusting task requirements rather than physically guiding the child through a behavior.

(4) Appropriate Language Input. Our fourth assumption was guided by literature documenting the relationship of the parent's language input to the child that is informative and responsive to the child's developmental level and language abilities. Ramey, Farran, Campbell, and Finkelstein (Note 12) summarize literature on "intellectual development and mother-infant interactions" that highlights findings regarding the influence of maternal language behavior on cognitive and language development in infants. They find the type of input that appears to be important varies with the child's age, although the one characteristic of maternal behavior that remains durable is whether the mother's verbal behavior is responsive to the child's verbal and nonverbal behavior. Also important is the consistency between the mother's

verbal and nonverbal messages to the child. Moreover, the content of a mother's communication must be informative. This literature influenced our inclusion of the following items as part of a total constellation of important teaching skills.

Clarity of content of verbal instructions. In this item, the rater is asked to judge whether the verbal instructions given to the child provide information that contributes to task solution. Identification of this factor initially came from our results with the Parent Teaching Style Scale (Robinson & Filler, Note 10) and subsequent work by Filler (Note 9). In these studies, note was made of the high frequency of verbal instruction given by mothers with the ratio of mother verbalization to child response frequently of the magnitude of 20 to 1 (Robinson & Filler, 1972, Note 10; Smith, 1973, et al., Note 8). On the basis of this initial finding Filler, in his dissertation, decided to make a distinction between verbal instructions that contained specific information, such as "place the elephant with the other elephant;" versus a noninformative direction such as "do it, do it, do it."

Ramey, Farran, Campbell, and Finkelstein (Note 12), report studies by Nelson (1973) and others who found that a maternal linguistic style that utilized more questions and informative talk than imperatives facilitated language development. Thus, rating the content of instructions consistently clear on this item would reflect a judgment that the instruction highlighted task requirements by providing relevant information, such as "the red balls go together in this box," or "let's put the sock on the doll's foot."

Developmental appropriateness of verbal instructions. In this item, the rater is required to judge whether verbal instructions are developmentally appropriate. The rationale for this item is that verbal instructions that are

not understandable to the child are not functional as instructions and, consequently, not functional as a teaching strategy.

(5) Appropriate Use of Behavior Shaping Strategies. The fifth assumption made regarding teaching strategies concerns the use of behavior shaping strategies, such as use of physical guidance, prompting, and modeling. We are suggesting that the use of such strategies must be selective and based upon observation of child behavior. Thus, while physical guidance is a useful strategy, if used inappropriately it can be more disruptive than facilitative of child responses. Generally, we find physical prompts or guidance to be more effective in achieving refinement in responses than generating new behaviors. For example, the child may be assisted to turn the form to fit it into the shape box after he has already selected the correct location for the shape. The items that reflect use of behavior shaping strategies include:

Physical guidance and prompts; Appropriate choice of when to use physical guidance and prompts when there are opportunities. In this item, the rater is asked to decide whether the parent uses physical prompting, such as refining the typography of a child's response, when such opportunities occur.

Prompts or guidance; How effective when used? This item follows item seven in that the rater is asked to judge whether, given the occasion of appropriate situations for use of prompts or guidance, the parent makes use of these opportunities in ways that assist the child, or in ways that intrude upon the child's active responding.

Modeling, pointing. In this item, the rater is asked to judge whether the parent makes appropriate use of modeling or pointing as a teaching strategy in appropriate situations. Implicit in this judgment is the assumption that the child must have shown at least the beginnings of imitation for modeling to be a useful strategy and that he should be responding to some

very simple gestures, such as extending arms when mother moves to lift the child, in order for pointing to be a functional cue.

(6) Feedback. The sixth assumption relates to the use of feedback. In general, learning literature and child development literature support the assumption that knowledge of results and information regarding how to correct incorrect responses facilitates learning of new behaviors. The judgments relating specifically to the use of feedback include:

Intelligibility of feedback; When used. In this item, the rater judges whether the verbal content of the feedback that the parent gives to the child is unambiguous, consistent, and developmentally appropriate. Selection of these characteristics was based upon the literature regarding the importance of maternal verbal input. In making such a judgment the rater would listen for phrases such as, "That's right, you put the block in the cup," as feedback that is both unambiguous and informative. An example of ambiguous feedback might be a phrase such as, "Well I guess so, but I think it was an accident." Again, a judgment is made on whether the content of the feedback is at a linguistic level that is likely to be meaningful to the child.

Non-verbal feedback. In this item, the rater is asked to judge whether nonverbal communications, including physical gestures such as patting and hugging, facial expressions, and tone of voice, support or are consistent with the verbal feedback. One would look for smiling and physical caress and/or an enthusiastic positive tone to support verbal statements that the child is correct. Alternatively, when the verbal content of the feedback is corrective, such as "No, the round block goes in the round hole," one would expect to hear a tone and see a facial expression that support this corrective feedback.

Feedback appropriateness. In addition to making judgments, the rater is asked to keep five specific frequency counts when observing a tape. These counts include: number of tasks presented, frequency of positive feedback, frequency of corrective feedback on the mother's part, frequency of correct responses and approximations of correct responses, and frequency of incorrect or avoidant responses on the child's part. The appropriateness of feedback is judged on the basis of the ratio of positive feedback to correct responses and the ratio of corrective feedback to incorrect responses. For children who are quite young and who are learning new responses, we are assuming that the ratio should be close to one feedback per one response. Exceptions would be those instances in which the child is working well in a familiar task and so requires little feedback.

Table 1 contains a summary of these assumptions and corresponding items from Version I of the Inventory. The several versions of the Inventory used in the studies reported here may be found in Appendix A.

Initial Findings - Version I - Teaching Skills Inventory:

Subjects. The initial version of the TSI was developed in the Parent Performance Prediction Study II. Subjects who participated in the initial development of the Teaching Skills Inventory included 55 parent-child dyads from the total population of infants and parents enrolled in the Infant Development Program at Meyer Children's Rehabilitation Institute during the period from September 1976 to August 1977. Efforts were made to include as many parents and children as possible who attended on a regular basis at least two thirds of their total scheduled visits. Only one parent refused to participate in this study. Children and parents included individuals who represented the full range of characteristics of children and parents enrolled in the Infant Program. Children ranged in chronological age from several

Table 1

Summary of Assumptions and Items Relating to Each Assumption

Assumption	Items
1. Necessity of a developmental match	4. developmental appropriateness of nonverbal instruction
	10. changes task
	12. conversion to more complex
	21. developmental appropriateness of task
	22. clarity of task objective
	23. complexity of child responses
2. Responsivity	1. discrete versus unstructured
	2. tracking
3. Active versus passive responding	11. modification of task
4. Appropriate language input	5. clarity of content-verbal instruction
	3. developmental appropriateness of verbal instruction
5. Use of behavior shaping strategies	7. appropriate use of guidance and prompts
	8. effectiveness of p & g when used
	9. modeling, pointing
6. Feedback	15. intelligibility of feedback
	16. use of nonverbal feedback
	17. feedback appropriateness

months to three years and had developmental delays ranging from those with mild to those with severe and profound handicapping conditions. Parents varied in age, educational background, and number of children.

Procedure. Data for this study were derived from videotape recordings of parent-child teaching sessions. Taping sessions were divided into three segments. First parents were asked to interact with their children in a manner that was the same or similar to the way they had been carrying out Infant Development Program activities at home. This tape segment lasted for four minutes. The taping of interactions was observed by the teacher assigned to that family. During the second segment of tape teachers commented on their observations and, where needed, offered suggestions for enhancing the parent's teaching effectiveness. This segment usually lasted between five and ten minutes. The teacher then left the room and the parent and child were taped while they interacted for another four minutes. The present discussion is based on analyses of the first and third segments of these tapes. This taping procedure was repeated three months later for a second tape with 55 parent-child dyads and repeated again three months later with 23 of the original 55 parent-child dyads.

Analysis

Item reliability. Parent infant teaching skills were assessed through the use of the TSI. This scale was composed of 23 items, 18 of which were 7 point rating items while the remaining five were behavior counts. Analysis was carried out on 268 videotaped segments of four minutes each. Our initial efforts were directed toward assessing the reliability and factor structure of the inve

Interrater reliability was assessed by use of Pearson product-moment correlations. These correlations are presented in Table 2. Reliability checks

were obtained on 45 percent of the tapes. The average interrater reliability was .75 for rating scale items and .81 for behavior count items. Behavior frequency counts and skill rating items were analyzed separately.

Table 2

Interrater Reliability on Version I of the TSI

Item	Description	Correlation
1.	Session, structure versus unstructure	.72
2.	Session, tracking	.77
3.	Appropriateness of verbal instruction	.78
4.	Appropriateness of non-verbal instruction	.71
5.	Clarity of verbal instruction	.70
6.	Clarity of non-verbal instruction	.82
7.	Use of prompts	.73
8.	Effectiveness of prompts	.84
9.	Modeling, pointing	.82
10.	Parent changes task	.64
11.	Parent modifies task	.83
12.	Conversion to more complex behavior	.77
13.	N positive feedback	.81
14.	N corrective feedback	.79
15.	Feedback intelligibility	.70
16.	Non-verbal communication	.68
17.	Feedback appropriateness	.75
18.	N tasks presented	.82
19.	N correct responses	.84
20.	N incorrect child responses	.78
21.	Appropriateness of task	.71
22.	Clarity of task objective	.77
23.	Child response complexity	.73
	Average Pearson product-moment correlation	.75

Internal consistency. The overall internal consistency for the 18 rating items was assessed and found to be satisfactory. The coefficient alpha for the scale of all 18 items was .96. However, the item-total correlation for item one, a rating of the structure of the session (the only item in which the optimal rating was at the midpoint rather than the extreme), was .22. Consequently, this item was separated from the other items that formed the inventory for purposes of data analysis.

Factor structure. A factor analysis of the 18 rating items was done and four factors were obtained. However, further analyses of the factor structure showed that it was not reproducible across separate data sets. Consequently, the items have been organized conceptually in the more recent versions of the TSI.

Analysis of stability of parent performance. The TSI was also used to assess changes in parent teaching skills. In this study, ten items having high item-total correlations were selected to form a scale. This ten-item scale had a coefficient alpha of .95. The items were 2, 3, 5, 6, 8, 10, 11, 12, 15, and 17. Twenty-three of the dyads were videotaped four months after the initial taping. A 2 (first tape vs. last tape) by 2 (first vs. third segment of tape) analysis of variance with repeated measures was conducted on the arithmetic sums of the ten items. A significant improvement in parent performance was found between the initial and final tapings, (F (1,22) = 4.30, $p < .05$). A significant improvement between the first and third tape segments was also found, (F,(1,22) = 18.23, $p < .001$). Overall these results suggest that the mothers' skills increased immediately after observing a teacher work with their children and over the four month period of involvement in the study. Finally, a strong but not significant interaction between tape segment and taping was also observed, (F (1,22) = 3.93, $p < .06$). As can be seen in

Table 3, the improvement in parent performance observed in the third segment diminishes from the first to final taping. Apparently, as parental skills improve, the impact of any one instance of training by a teacher diminishes.

Table 3

Means and Standard Deviations for Tapes Rated using Version I

		Means*	S.D.*
Initial Tape	Segment 1	52.1	10.0
	Segment 3	55.3	8.0
Final Tape	Segment 1	57.3	12.2
	Segment 3	57.5	12.9

* N=23

The results of this analysis indicated that the Teaching Skills Inventory could successfully discriminate differences in parent performance that arose over time. These results also suggested that further investigation of the Teaching Skills Inventory's use as a teaching and research tool was warranted. In addition, we had found that the inventory was easily and quickly administered. With it the results of an observation were readily interpreted and areas in which parent teaching competencies could be enhanced were identified.

Version II Teaching Skills Inventory

Following the initial analysis of tape ratings from the Parent Performance Prediction Study II, a study was proposed and funded through University of Nebraska seed funds for further development of the TSI. That study involved training professionals who were not involved with the initial development of the scale to do ratings. Based upon experience training the first group of five professionals, some changes were made in the Inventory. Some problems in communicating the basis for the ratings became evident in our

training of staff who were less familiar than we were with the inventory. The two non-verbal antecedent items were combined into one item. The count of child avoidance responses was deleted. The use of the physical guidance item was deleted and a use of modeling item was added. The complexity of child's response item was deleted and replaced with child's interest in activity. The non-verbal feedback item was rewritten in order to clarify the item. Based upon more extensive analysis of the original data collected during the Parent Performance Prediction Study II, the four factors generated through factor analysis were discarded in favor of grouping the items into five conceptual areas: (1) structure of the teaching situation; (2) events occurring prior to or concurrent with task presentation; (3) events occurring after task presentation; (4) feedback given to child after he responds to the task and (5) child interest in activity. This fifth aspect of the scale required the rater to evaluate the quality of the child's responses on a dimension of complexity with reference to the child's developmental age. Feedback from the second group trained to use the Inventory suggested that the conceptual grouping facilitated training in use of the Inventory. In Table 4 the conceptual dimensions of Version II of the Inventory with the accompanying item numbers are presented.

Internal consistency - Version II. Coefficient alpha was computed for 13 of the 15 rating items on Version II of the TSI. Two rating items, structure of the session and child's interest, were not included in computation of coefficient alpha. The former was excluded because the seven point scale was different for this item, the midpoint was considered to be the most positive rating, and the two extremes were viewed as equally negative in value. The latter was excluded because the item is conceptually different from the other

Table 4

Version II of the TSI Conceptual Areas

Area	Scale Item Numbers
I. Structure of Teaching Situation	1,2
II. Antecedents Techniques	3,4,5,6,7
III. Shaping Techniques	8,9,10,11,12
IV. Feedback	15,16
V. Child Responses	19
Total Number of Rating Items	15
VI. Behavior Counts	
No. of instances of positive feedback	13
No. of instances of corrective feedback	14
No. of tasks presented	17
No. of correct responses	18
Total Number of Counts	4

items in that it is not a measure of mother's performance. Coefficient alpha for the 13 items based upon 23 cases was .96.

Interrater reliability - Version II. Interrater reliability for scale items was computed as a percentage of agreement between two independent raters on each 7-point scale. Each point of discrepancy in a 7-point rating was converted numerically to 14. For example, if one rater scored an item as 6 and the other rater scored an item as 5, the agreement would be 86%. Interrater reliability ratings were obtained on 90 percent of the 143 tapes in which Version II was used. Reliability on individual items ranged from 83 to 89 percent. Average agreement for the 15 rating items was 85.8 percent. Table 5 contains a listing of the item-by-item average interrater reliability for this version of the Inventory.

Table 5

Interrater Reliability on Version II

Item Title	Reliability *
1. Discrete Structure	83
2. Tracking	89
3. Clarity of Task Objective	88
4. Task Developmental Appropriateness	88
5. Non-Verbal Task Antecedent	88
6. Clarity Verbal	88
7. Developmental Appropriateness Verbal Instruction	85
8. Effectiveness of Guidance and Prompts	83
9. Modeling	85
10. Changes Task	86
11. Modification of Task	85
12. Conversion of Child Behavior	84
13. Use of Non-Verbal Feedback	87
14. Appropriateness of Feedback	83
15. Child's Interest in Task	85
Average interrater reliability	85.8

* Calculated by percent agreement method

Version III - Teaching Skills Inventory

The final version of the Teaching Skills Inventory, (see Appendix B for manual), contains nine items which address the following areas: (1) structure of the interaction (2) sensitivity to the child (3) basic instructional skills, (4) feedback, and, (5) child responses. The final version of the Inventory reflects the same basic assumptions regarding instructional skills as the first and second versions. The reduction in number of items came about based upon feedback from the professionals who received training in the use of the Inventory. There was general agreement among the teachers who received training in the use of the two earlier versions of the Inventory that it was difficult to differentiate among some of the scale items. This difficulty centered primarily around a perception on the teacher's part that a mother's level of skill on some items was highly consistent with her level of skill on another item. For example, in the first

version of the scale, a distinction was made between clarity of verbal and non-verbal instructional content as well as developmental appropriateness of verbal and non-verbal instruction. In the final version only the developmental appropriateness items were retained.

The conceptual organization of the scale was modified so that antecedents and shaping were combined to form instructional skills. The components of the conceptual factor of structure from Version II, adult versus child initiation and tracking, were separated. Feedback remained essentially the same, as did the information recorded about the child's responses.

Interrater reliability between eight teachers and the standard rater, with each teacher rating from four to seven tapes, was assessed for Version III of the Inventory. Interrater reliabilities were calculated by computing percentage of agreement between the two raters' ratings of each item. Average interrater agreement between the eight pairs of raters, a standard rater with each of the teachers, is presented in Table 6.

Table 6

Interrater Reliability on Version III

Item Title	Avg. Percent Agreement	Avg. Point Difference
1. Structure	87	.93
2. Tracking	88	.86
3. Clarity of Objectives	87	.93
4. Develop Appropriateness of Activities	92	.57
5. Appropriateness of Verbal Instruction	90	.71
6. Appropriateness of Non-Verbal Instruction	85	1.17
7. Adjustment of Activity Complexity	89	.79
8. Appropriateness of Feedback	86	1.00
9. Child Participation in Interaction	94	.43
Total Average Percent Agreement	88.66	

In Table 7, the items and their corresponding numbers across all three versions of the Inventory are presented.

Table 7

Cross Reference of Items Across All Versions of the TSI

Item Title	Item Numbers Version 1	Version 2	Version 3
Scale Items			
structure	1	1	1
tracking	2	2	2
development appropriateness of verbal instruction	3	7	5
development appropriateness of non-verbal instruction	4	5	6
instruction content clarity verbal	5	6	
instruction content clarity non-verbal	6		
prompt guide-appropriateness utilization	7		
prompt guide-effectiveness	8	8	
modeling pointing	9	9	
parent changes task	10	3	
parent modifies task	11	11	7
conversion to more complex	12	12	
feedback intelligibility	15		
non-verbal communication	16	15	
feedback appropriateness	17	16	11
development appropriateness of task	21	4	4
clarity of task objective	22	3	3
complexity of child response	23		
child interest/participation		19	14
Total number of scale items	18	15	9
Counts			
No. positive feedback	13	13	9
No. correct feedback	14	14	10
No. tasks presented	18	17	12
No. correct responses	19	18	13
No. incorrect child responses	20		
Total number of counts	5	4	4

Study I

Part A: Training of Infant Teachers

Objective

The overall objective of the first study was to further develop the Teaching Skills Inventory as a tool for appraising teaching competencies, for identifying deficiencies in teaching competencies to be remediated, as well as for assessing the effects of remedial efforts. Given that the Inventory permits documentation of the dimensions of parent skills and child learning, the first step prior to using it to train parents was to demonstrate that the teachers themselves displayed the necessary teaching competencies described for the parents.

Method

Subjects. Professional staff from Meyer Children's Rehabilitation Institute participated in this study. They included nine teachers from the Infant Development Program, as well as seven physical and occupational therapists. Each of the Infant Program teachers was responsible for working with up to 10 parents and their handicapped infants on a weekly basis. The teachers were trained in two separate groups as new staff joined the Infant Program. The first group of five teachers was trained in the first version of the Inventory. The second group of four teachers was trained with Version II. Each of the Infant Program teachers had at least four years experience in working with children functioning developmentally within the first two years of life, at the time of training. Although each teacher's background was relevant to the education of children with handicaps, the extent and nature of their formal education varied. These varied backgrounds included physical therapy, psychology, special education, and human development. The extent of formal training included persons with bachelor's and master's degrees. All the

therapists were registered in either physical or occupational therapy. Two had master's degrees. The other three therapists were working on master's degrees. All were professionally involved in the evaluation and provision of physical or occupational therapy to handicapped children. The majority of their cases involved instruction of parents in activities to be carried out at home with their children.

The approaches used by these teachers and therapists in teaching parents to work with their own children varied, depending on their own backgrounds, the nature of an infant's disability, and their perceptions of what knowledge each parent needed and the way that parent learned best.

Procedure. Two types of baseline data were collected. The first type included two baseline videotapes for each participating staff member with parent-infant dyads from their caseload. Tapes were structured so as to record the parent and child interacting for five minutes. Then the teacher or therapist offered the parent suggestions and/or demonstrated techniques for working with that child on the basis of what was observed in the parent-child interactions. This segment lasted up to an additional 10 minutes. The tape of each staff member's teaching suggestions was reviewed by a research assistant. The number of times the teacher offered the parent feedback regarding a skill or technique included in the inventory was classified according to the four conceptual categories on Version II of the Inventory. Those categories included: (1) structure, (2) sensitivity, (3) instructional techniques, and (4) feedback. Baseline performance tapes of staff members working with children were also collected. These tapes included a five minute segment of the teacher or therapist working directly with individual children. This provided baseline performance for the staff with respect to the skills represented on the Teaching Skills Inventory.

Training teachers and therapists took place in three separate groups. The first was a group of infant teachers, the second and third groups included both physical and occupational therapists and teachers. Training was provided to the staff in groups for each of the three training phases. Training of the initial group of teachers was provided by the investigators using Version I of the inventory. This training focused upon one factor (of the four factors derived through factor analysis) at a time. The training of the second and third groups was done primarily by the research assistant on the project. The second group received training on Version II of the Inventory with the overall training time shortened since the Inventory had by that time been reduced and the factors organized conceptually. By the third group it was possible to train experienced teachers and therapists to reliably rate tapes using the TSI in approximately four hours time.

Training Group I (Teacher Training). Baseline to follow-up for the training study of this version was three to six months, depending upon the case schedule of the individual teacher. Teachers received two hours of discussion oriented instruction on the rating system, with tape rating practice on each of four separate areas, for a total of eight hours of instruction. Each training session was separated by two or three weeks during which teachers practiced rating tapes and working with families on the items for which they had received instruction.

Training Group II (Two Teachers, Three Therapists). Total training time was eight hours, distributed as four two-hour sessions over two months. Conditions were the same as with Version I training except that with a shortened Inventory the items were taught in two groups.

Training Group III (Two Teachers, Three Therapists). Training procedures were essentially the same as those used in training groups one and two, except

that the Inventory had been shortened to nine items and the entire Inventory was covered throughout the training period.

As part of their training, teachers and therapists rated parent-child dyads with whom they had not worked directly. The criterion for rating of tapes was 85 percent agreement with the standard rater (research assistant on the project) across the total scale. This level requires that the teacher or therapist have no more than one-point disagreement on the average across the rating items, each of which is a seven-point scale.

Results

The focus of Study I was to assess the reliability with which professionals (teachers and therapists) could be trained in use of the Training Skills Inventory. Several measures of teacher and therapist performance were taken in order to answer this question.

Interrater reliability between professionals being trained in use of the Inventory and standard raters in their ratings of parent performance was assessed. A criterion of 85 percent agreement for total scale reliability was set as a condition for completion of training in use of the Inventory. All 16 professionals who received training accomplished that level of reliability in the specified training time. Professionals who participated in further studies were periodically asked to do check-up reliability ratings. All such staff continued to demonstrate reliability in their ratings. Staff who were initially trained on Version I of the Inventory were subsequently checked for reliability on Version III.

Changes in teacher performance assessed through the Teaching Skills Inventory from baseline to post-training tapes were analyzed. Teacher performance in working with three children on pretraining and at least two children on post-training was analyzed. The research assistant was the

standard rater and rated all of the tapes. Average interrater reliability for these ratings was 90 percent over three consecutive tapes. Teacher performance with children as assessed with the Inventory (Version II) was consistently high on baseline (mean baseline ratings for the first group which included five teachers was 6.6 out of a possible total of 7). Average post-training rating for the same group of teachers was 6.8. Change in teacher performance from pre-training to post-training was found to be non-significant using a t-test for related measures, (t = 1.17). Teacher performance on baseline was very close to the maximum score and the criterion for completion of training, so it is not surprising that the improvements were not significant given that only small improvements were possible. For the second group of teachers, mean rating of teacher performance on the pre-training tapes was 6.4 and on the post-training tapes, 6.7. Results from the second group of teachers trained were consistent with those of the first group.

Changes in teacher's suggestions to parents regarding teaching techniques from pre- to post-teacher training were also assessed. The initial procedure for this study called for classifying teacher suggestions for parents by content area (i.e., structure, tracking, antecedents, shaping, and feedback) and by mode of delivery of instruction (description, demonstration, queries, etc.). It was found after a number of months of effort that reliability could not be established for such a rating system. Consequently, the procedure used was to count the number of verbal suggestions given to parents by teachers and, in counting, to classify those suggestions according to the categories of structure, instructional strategies, feedback to the child, and sensitivity. Not assessed with this procedure was the degree to which parent instruction was accomplished via demonstration or verbal modes

other than specific directives. Then data were collected for all nine teachers who received training. Interrater reliability on number and category of teacher suggestions to parents was assessed for one third of the tapes. Percentage of agreement for each of the categories is presented in Table 8.

Table 8

Interrater Reliability for Counts and Classification of Teacher Suggestions

Category	Percent Agreement
Structure	91
Sensitivity	75
Instructional Techniques	92
Feedback	91

Data were available on teacher suggestions for a total of 16 parent-teacher dyads. Seven teachers worked with two parents each and two teachers worked with one parent each. It should be noted that the overall number of comments was very small. The average increase in number of instructional comments given by the nine teachers in the 10 minute sessions was .5 comments. Thus, teacher's instructions to parents increased in frequency after training; however, the increases were so slight as to not be meaningful. Of the four categories, increases in the frequency of teacher comments about sensitivity to the child's moods and interest were most marked.

The major problem in interpreting the absence of change in the number instructional comments made by teachers stems from questions about how teachers actually instruct the parents. In looking at the video tapes of the

sessions, one has the impression that the primary instructional mode used by the teachers is demonstration of technique and not discussion. However, currently, we do not have a sensitive and reliable measure of this type of parent instruction. Consequently, we were not able to fully assess the impact of this training on the teacher's instructional approach.

The Inventory was used to assess changes in parent performance from the baseline to the post-training phase of the study. These were parents who participated in the first teacher training study by permitting videotaping of themselves with their children prior to and following the training of the five teachers. T-tests for related measures were performed on pre- and post-teacher training on ratings of the parent skills. The parents, as a group, showed a statistically reliable increase in skill level on the conceptual areas of instructional skills ($t = 3.21$, $p < .05$) and feedback ($t = 3.05$, $p < .05$). This suggests that the parents were learning some things, although not by what teachers said as much as by what they saw the teachers do.

Part B: Training of Physical and Occupational Therapists

Objective

The rationale for training physical and occupational therapists was to determine the degree to which the Teaching Skills Inventory would be useful in a discipline in which early intervention was largely parent mediated while the developmental content differed (motor versus cognitive development). It was found that the Teaching Skills Inventory required some modifications in items and item descriptions in order to make it more understandable by the staff who received training. Staff resignations and difficulties with scheduling parents and children made it impossible to collect several measures of effectiveness of training, including the therapist change in performance and

parent change in performance. The therapists who were trained did demonstrate the ability to reliably rate taped segments.

Method

Subjects. Four therapists, two occupational (OT), and two physical therapists (PT), agreed to participate in the study. Pediatric experience of these therapists ranged from one to fifteen years. The OT conducting the study had nine years pediatric experience with six years at MCRI.

Procedure. For purposes of this study, the term "Preliminary Part" was used to describe the training of the therapists and the terms "pre-tapes" and "post-tapes" referred to those 20 minute tapes taken before and after therapist training. The Primary Part referred to that portion of the study that was to be therapist training of parents and included baseline tapes and session tapes.

Pre-tapes were taken during a two-month period. Each therapist selected three children who were likely to continue therapy for at least the next six to eight weeks. The children were not new to MCRI and were already being seen by the therapists. The training sessions started the next month. The first session involved an explanation of the study, including a brief description of the background and rationale. Each item on the scale was reviewed as well as the rating system. One tape was shown with the trainer making comments throughout and the group then rated and discussed their ratings of the items. A second tape was rated with no discussion until the ratings were completed. Most of the questions from therapists concerned the behavior counts. This appeared to be the most confusing area and the one with the most disagreement, especially regarding what constituted an activity. Since the behavior counts were intended to help focus attention, facilitate ratings, and did not affect the ratings, they were dropped. Instead,

therapists made notes on the back of the form to give an account of what they saw and these were referred to while rating.

Due to difficulty coordinating schedules, further training sessions were held with one or two therapists at a time. During this time, a shorter version of the rating guidelines was written. While therapists needed more than just the description of each rating, the lengthy description of each item from the guidelines used in the Infant Program was too cumbersome and, at times, confused rather than clarified. This was probably due, in part, to the educational jargon or phrasing by which behaviors were described from a different orientation. One example was the use of the words "tracking" and "sensitivity." Therapists are accustomed to using "tracking" in the context of visual tracking, so this term was somewhat misleading even though it was defined. Also, sensitivity was too often equated with being kind or comforting (sensitive), which was not the intent of the term. Therefore, the sensitivity item was changed from the original "Tracking, Adult Sensitivity to Child" to "Responsiveness, Adult Utilizes Child's Expression of Interest." The Rating Form was also modified accordingly, and letters added for ease of reference. These adapted materials are presented in Appendix A. The new guidelines were six pages instead of 12, although each person kept a copy of both versions and could refer back to the original if necessary.

Tapes used for training included those taken at an earlier time and those used as pre-tapes. Since training was not done as a group of four, it was possible to use pre-tapes without using a particular therapist's own patients. Criteria for completion of training was agreement of 78 percent or better with the standard rater on three consecutive tapes. This was determined by the number of agreements divided by the total number of items (9). An agreement was considered to be a difference of 0 or 1 on each item. This method was

chosen because it was felt that a difference of 1 on the 7-point scale was not significant and usually reflected a slightly more conservative or liberal interpretation of the rating descriptions. Using this method, the therapists had to agree on at least seven out of nine items. Therapists attained criteria after five to six ratings, after the initial training session. Post-training tapes were then taken three to four months after initiation of training. Unfortunately, post-tapes were not obtained on all the children. Two children left MCRI, two children were hospitalized, and one child changed therapists.

Therapist training of parents. Baseline tapes were started in June and July on three therapists for the parent training portion. By this time, one OT had resigned from MCRI and moved out of the area. The remaining therapists were instructed to select three children who were just starting treatment. A minimum of three baseline tapes were taken for each child-parent dyad. Each of these was rated by the therapist as well as the standard rater in order to ensure continuing reliability and completion of the ratings. If the ratings for the three tapes were fairly stable, session tapes were started. If not, more baseline tapes were to be taken and/or the child and parent would be discontinued from the study, however this did not occur. After rating baseline tapes, the therapist chose an area of instruction to address with the assistance of the standard rater, if needed.

By December 1981, only five child-parent dyads had been selected among the three therapists. One dyad had three baseline tapes and three session tapes; one had three baseline and two session tapes; one had three baseline and one session tapes; two dyads had two baseline tapes and no session tapes. Completion of tapes was difficult for several reasons. One was the difficulty finding children who were just beginning therapy and whose parents had some

need for instruction (some parents had already completed training in the Infant Program or possessed very good teaching skills to begin with). Another problem was that the typical therapy program at MCRI begins with six to eight weekly treatments, with the frequency reducing until a client is monitored only one to two times a month. This schedule was devised because most parents can be instructed in home management and treatment during this time, and additional therapy is not felt to be needed weekly. The demand for therapy services also plays a part. While therapists were requested to continue children for purposes of the study, this was difficult to do at times. Other factors were decreasing commitment of the therapists to the study in view of other demands, and illness and cancellation of children. Six months later, when a second therapist in the study resigned from the Institute and a third requested to be allowed to drop out, the study was discontinued.

Study II

Objective

The objective of the second study of this series was the assessment of the utility of the Teaching Skills Inventory as a basis for focusing instruction provided by teachers to parents. The need for providing specific instruction in teaching techniques was suggested by lack of changes in parent performance on the ratings of the first two videotapes taken of each parent in the initial phases of development of the Inventory. The first two tapes were separated by a period of two to three months, and the ratings reflected no change in parent performance with respect to the dimensions represented on the checklist. Our observations of parent performance on an informal basis also supported the conclusions that it is necessary to focus instruction given to parents on teaching strategies as well as developmental content, and that it

is also necessary to formally monitor parent performance so as to document change or the lack of change in teaching skills.

Factor analysis of Version I of the Teaching Skills Inventory yielded results indicating that there were four factors that related to parent teaching skills. The original proposal for this work called for the training to be implemented in a multiple baseline design. Each teacher was to identify the factor upon which he felt each parent's training should be focused first, and then provide training until the parent reached criterion on that factor. Training would then be focused on a second factor until each parent's performance was at the criterion level on each factor and on the total inventory.

In actual practice, teachers found it difficult to confine their instruction to one factor at a time. They felt that this constraint made them self-conscious and disrupted the "flow" of the session. In addition, the factor structure had not been demonstrated to be reliable across data sets. Consequently, monitoring performance across factors, as the original design had called for, was discarded during the course of the study in favor of a quasi-experimental design that made use of several pre- and post-tests.

Method

Subjects. A total of 26 mothers began participation in the study. Sixteen mothers continued participation to a point where they could be included in the analysis of training data. Four teachers provided the training to the mothers who participated. There were several reasons why 10 mothers did not complete the study. Four of the mothers were at criterion level of performance in the ratings done of them at baseline. Of these four mothers, two had been in the program for at least six months prior to inception of the study. Of the others, one had a child who demonstrated only

minimal delays at the time of entry into the program. The fourth case was one in which there was considerable disagreement between the independent raters and the teacher regarding baseline performance. Because the independent rater's score met the criterion for exclusion, that case was not included. The reason for not completing the training for five additional mothers was their children's transfer to another program. In four cases the school districts responsible for the children decided to serve the children in another program. This occurred because of the age of the child or because school districts had started new programs and could serve the child directly. The fifth child no longer showed any delay and was served in a preschool for non-handicapped children. One mother participated for six months, during which time she showed some improvement, and she then stopped coming. This is a mother who has been diagnosed as mentally retarded.

There are several characteristics of the mothers and children among the 16 who completed the study that are important to note. The average educational level of the mothers was completion of high school plus additional schooling for the 11 on whom we have this data. The average income for the 10 families on whom income data was available was $22,800 with a range of $12,000 to $32,000 per annum at the time of the study which was 1979-1980. An eleventh mother was on Aid to Dependent Children so that amount was not averaged with the rest.

In the original design of the study, it was anticipated that only parents who were new referrals to the Infant Program would be included. However, after initiation of the project LB 889 was passed, which is Nebraska's early education legislation for handicapped children. This bill requires school districts to fund educational programs from the date of a child's diagnosis. Consequently, the largest school district in the area implemented its own

infant program. As a result, enrollment in the MCRI Infant Program was reduced from an average of 80 active cases to an average of 30 active cases per year. Consequently, in order to carry out these studies participation by parents who had been in the program but who did not perform at criterion level on the Inventory was permitted. Of the 16 parents, 11 had been in the program prior to their starting in the parent training study. The mean length of enrollment of that subgroup was 15.3 months, with a range of four to 27 months. Of the group of mothers who had been previously enrolled, five had children who were moderately to severely handicapped and six had children who were mildly handicapped. Of the parents whose participation in the parent training study coincided with their enrollment in the Infant Program, three had children with mild handicaps and two had children with moderate to severe handicaps. Table 9 contains a summary of the numbers of cases occurring in the four possible combinations of the two characteristics.

Table 9

Child's Degree of Handicap for New and Previous Participants

Length of Participation in Program	Child's Degree of Handicap	
	Mild	Moderate to Severe
New - (less than 2 months)	3 cases	2 cases
Previous - (4-27 months)	6 cases	5 cases

Procedure. Three baseline videotapes of five minutes each were taken on pre-training visits of the parent and child to the Infant Program. For each taping the parent was asked to play with her child using the suggestions she had been given for activities and incorporating any other activities felt to be appropriate. A number of toys was made available and the parent was offered the opportunity to request any additional materials. A research assistant rated the tapes and shared those ratings with the teacher.

Initially the teacher assigned to the parent and child and one of the research staff, but not the research assistant who rated the tapes, reviewed the tapes and the ratings of the tape. On the basis of that information the first factor to be emphasized in training the parent was identified. Each factor contained from two to six items that reflected skills to be learned. After selection of a factor, teachers specified a technique or skill as the first target for instruction within that factor. Training was continued on individual skills within a factor until the parent's total score on that factor reached an average of 6 on the 7- point scale. This procedure was discontinued, as previously pointed out, due to the unreliability of the factor structure and teacher discomfort with trying to adhere to one factor at a time. The teacher provided the parent with specific instruction around the use of teaching skills embodied in each of the items within the Inventory. The teachers primarily used techniques of actual demonstration and guided practice in providing training to parents. Once the teachers felt that the parent was ready to be taped again, another taping was completed. The maximum number of sessions between tapings was six sessions. In several cases, teachers asked for a greater number of sessions between tapings. The reason given was the parents' discomfort at being videotaped. These extensions were granted. Upon his subsequent questioning of the teachers, the research assistant had the impression that the discomfort was as much on the teachers' part as the parents'.

The research assistant and the teacher independently rated the videotape before a parent's next visit. The independent rater did not know what skills the teacher was working on with the parent for the sessions which preceded each taping. The research coordinator and teacher inspected the ratings and

decided whether continued training was necessary on a given technique or skill. Training was continued up to a maximum of [illegible] sessions.

Home scale The initial proposal, called [illegible] Scale [illegible] & Bradley, 1978) to be administered before and [illegible] the rationale for the inclusion of this instrument was as follows. One of the basic questions to be answered regarding effectiveness of parent training procedures concerned the issue of generalization of learning from clinic or school to home. We argued that changes in parent performance as defined through the Training Skills Inventory would be measured by the Home Scale. The Home Scale reflects several important dimensions of the home environment, including physical and social characteristics that have been demonstrated as predictors of later child development. For example, Wachs (1976) found that a regular predictable routine as part of a family's schedule related to specific aspects of sensorimotor development, such as development of object permanence. Maternal responsivity and sensitivity to child needs and wants have been demonstrated to be related to child language development.

Initially, pre-training Home Scale data were collected on all families included in this study. Upon inspection of those scores, we found that only six out of the first 18 families had scores below 84 percent of the total possible score on the Home Scale. The scale has a total of 45 items; consequently, a score of 38 or higher is 84 percent or better. In addition, we found that there were some items on the scale that were inappropriate to situations in which the child was severely retarded with multiple handicaps. In three of the cases in which low scores (below 38) were obtained, the children were severely retarded. In five of the cases where lower scores were obtained, the parents were themselves retarded or had significant emotional adjustment difficulties. All of the six cases with low Home scale scores

dropped out of the study, either due to the fact that they moved out of the area, or because their children moved to another program at the school district's initiative. Collection of the Home Scale data was discontinued because it was felt this would not result in useful information.

Results

Parent skills. An Analysis of Variance with repeated measures was done on the ratings of parent performance at the five points in the training sequence. Parents' skills were found to increase significantly over time ($F(4,60) = 21.65$, $p < .001$). Means and standard deviations for ratings of the 16 mothers who received training may be found in Table 10.

Table 10

Means and Standard Deviations for Teaching Skills of Mothers

Parents	Pre 1	Pre 2	Pre 3	Post 1	Follow-Up
Mean	62.69	61.13	59.25	75.63	78.44
S.D.	10.07	13.56	12.90	7.81	7.79

Tukey's Test was then used to determine at what point this improvement occurred. No significant change was found prior to the onset of training. Significant improvement ($p < .05$) was observed between the last pre-test and the first tape done after training began. No significant change occurred between this initial training tape and the follow-up tape.

A second AOV was done to assess the impact of time in a program on a parent's performance. The analysis compared skill level of the 11 parents who had been in the program for more than two months before the beginning of this focused training, with the performance of five parents who were new to the Infant Program. No significant differences were observed, ($F(1,14) = .87$).

A third AOV with repeated measures was done to assess whether the severity of the children's handicaps had an effect on the assessments of parents skills. No differences between nine parents of mildly handicapped children and seven parents of moderately or severely handicapped children were found, (F (1,14) = .19).

Child interest. A comparable set of analyses were done to assess changes on the item, child interest in activity, over the course of this parent training study. This item was included in Versions II and III of the inventory and was used as a dependent measure reflecting the degree to which the parent was successful in engaging the child in the learning activities.

An AOV with repeated measures was done. Children's interest was found to increase significantly over the tapings (F (4,56) = 4.10, $p < .05$). See Table 11 for these means and standard deviations. Tukey's Test was then used to determine when changes in child involvement occurred. Child involvement was highest at the time of follow-up and significantly higher ($p < .05$) at follow-up than the average level on the baseline tapes or on the second baseline tape.

Table 11

Means and Standard Deviations of Ratings of Child's Involvement

Children	Pre 1	Pre 2	Pre 3	Post 1	Follow-Up
Mean	4.87	4.20	4.67	4.93	5.67
S.D.	1.51	1.37	1.45	1.16	.72

Another AOV with repeated measures was done to assess the impact of time associated with the program on child involvement in the intervention. In this analysis, ratings of four children who had participated in the program for less than two months were compared with the ratings of 11 children who had

been in the program for longer than that period. No difference was observed between the two groups (F (1,13) = .35).

Finally, the impact of severity of handicaps on a child's involvement was assessed by an AOV with repeated measures. Nine mildly handicapped children were compared with six who were moderately or severely handicapped. A non-significant trend was observed, (F (1,13) = 3.15, $p < .10$), suggesting that under some circumstances, the more severely handicapped children may be found to be somewhat less interested then the mildly handicapped infants. An alternative hypothesis regarding this finding is that the item may discriminate against the severely handicapped child who is less capable of initiating activities.

Study III

In the original proposal, we indicated that we would validate the use of the Teaching Skills Inventory by training persons from the disciplines of physical and occupational therapy. In the section of this report on Training of Physical and Occupational Therapists (Study I, Part B), we pointed out that we encountered problems in making that extension due to staff turnover and an inadequate number of qualified families. A modified version of the Inventory was developed but the proposed validation through demonstration of utility in parent training in the domain of motor development was not accomplished. This study was to be carried out as a student master's thesis (Gabriel, Note 13). When the replication was found to be not possible, the therapist completed a survey of physical and occupational therapists. The focus of this survey was to determine therapists' attitudes toward and implementation of procedures of parent mediated intervention. General conclusions of that survey were:
(1) physical and occupational therapists in Nebraska and Iowa who work with handicapped children were very consistent in placing a high priority on

working with parents to teach them principles and techniques of physical management of their handicapped child; (2) therapists were also consistent in their response that what training they received in working with parents came on the job rather than during their final preparation. It was concluded in this thesis that therapists needed to be better prepared in parent training techniques.

Study IV

Objective

The objective of this study was to assess the use of self-modeling as a means of enchancing parent teaching abilities with respect to the skills identified within the Teaching Skills Inventory.

Rationale

Training parents as teachers and therapists of their own children relies heavily upon verbal instruction procedures and upon the observation of professionals working with those children. We have found that some parents have not been effectively guided by professional verbalizations of principles or by demonstrations of teaching skills. There are many possible reasons for these failures. Parents may not pay attention to what the teachers say out of a sense that they are being criticized by the teacher, or because they believe themselves incapable of implementing the procedures that the teacher is discussing or demonstrating. Another reason for lack of parental response might include the teacher's failure to break the teaching task into sufficiently manageable steps for the parent. A procedure called "self-modeling" has been successfully used to teach parents of children having speech and learning disabilities to engage in playful interactions with their own children (Peddicord, Note 14). In this procedure, parents view videotaped interactions of themselves with their children. The teacher or therapist

points out and praises features of the interactions that he or she wishes to encourage. Through a process of repeated viewings of successive tapes, the teacher is able to shape parents' interactions with their children. This procedure has several desirable features. First, it is a positive approach, using reinforcement to shape an increasingly competent parent. Second, observations of one's own performances permits a clearer understanding of what skills can be changed. In this self-modeling procedure, an awareness of one's own performance is cultivated.

In the application for funding for this work, we proposed that we would randomly select a comparison group for the Self-Modeling Study from parents who received training in the previous study. Upon completion of the initial Parent Training Study, we decided that such a procedure would not be appropriate for several reasons. The primary reason was the length of time allowed between tapings in the first training studies. Training for some parents extended over a period of six months due to teachers' reluctance to do tapings. In addition, the teachers who would be participating in the self-modeling study were verbalizing different attitudes regarding the training than those which they had expressed at the inception of the first parent training study. Consequently, we felt it was not possible to compare their training approach with a new group of parents to their previous training efforts as a test of two alternative procedures. Moreover, we decided to randomly assign new parents who entered the group and who agreed to participate in the study to one of two conditions: (1) A Self-Modeling dition using videotape feedback, and, (2) A Standard Training Condition which used the approach taken and demonstrated to be successful in the first study with additional constraints on the number of training sessions and the length of time over which these sessions could occur.

Method

Subjects. Subjects for this study were 11 mothers newly referred to the Infant Program at the time of entry into the study. Subjects were randomly assigned to the self-modeling or standard training condition. Five mothers were assigned to the self-modeling condition and six to the standard training condition. The mean educational level of these mothers was 13.6 years (data were not available on two mothers) and the mean income was $16,100 per year (this data was not available on four families).

Procedure. A five-minute videotape of parents and child interacting was collected as baseline data. The guidance that mothers were given for this taping was that the teachers would give the parents suggestions for activities prior to the session but that the parent should feel free to initiate any activities she felt were appropriate. In addition, she could ask for any toys or other materials she wished. The individual teachers observed this taping procedure for parents with whom they were to work. The teacher then used her rating of the baseline tape and the observations she needed to identify objectives for her instruction of the parent.

Training was provided in four sessions which had to be concluded in a six-week period. A five-minute videotape of mother and child interacting under the same conditions as described in the baseline procedure was taken. The instructional session was then given immediately following the taping. In the Self-Modeling Condition, the teacher used the videotape in order to instruct the parent. In the Standard Training Condition the teacher gave instruction to the parent using the traditional modes of instruction.

The week after the fourth training session or at the sixth week following collection of the baseline tape, a post-training five minute videotape was taken under the same conditions as the previous tapes. A rater, blind to the

condition of training the parent received and blind to the order (pre- or post-training) of the tape, rated all the tapes using Version III of the Inventory.

Results

Interrater reliability was obtained for eight of the 22 tapes. The mean of the ratings for the seven rating items used was 87 percent. The average ratings of mothers teaching skills for the two groups were not significantly different and are summarized in Table 12.

Table 12

Means and Standard Deviations for Teaching Skills of Mothers

	Modeling		Standard	
	Pre	Post	Pre	Post
Means	35.2	40.4	34.7	35.7
SD	8.3	4.3	5.8	8.6

An analysis of variance with repeated measures was done. Although the modeling procedure appears to be somewhat more effective than the standard method no significant effects were obtained. Comparison of treatment effects showed no differences between the modeling and standard training procedure, (F (1.9) = .53). Parent skills did not increase significantly, (F (1,9) = 1.96), over the training period.

Discussion

The results of these studies showed a number of things about the use of the Teaching Skills Inventory in the training of teachers, the facilitation of parent-child interaction, and evaluation of professional and parent teaching

skills. First, the results of this work indicate that the Teaching Skills Inventory is a reliable and readily used instrument for the assessment of teaching skills of both parents and professionals. This work also indicates that teachers and therapists can readily learn to rate performance of the parents with whom they work. It was also found in the course of this work that the process of rating the abilities of parents using the TSI helps teachers to identify areas in which parents have skill deficits and that teachers then find that they can work with parents to improve those skills. In this connection, the work that has been presented indicates that a parent's performance is affected by training that has been guided through the use of the TSI. Study II indicated that, regardless of the handicap of a child or the length of time that the parents have been in a program, intervention geared for the first time to the skills rated with the TSI, produced distinct improvements in parent skills as measured by the TSI.

Initial efforts to study the effect of training teachers in the use of the TSI indicated that training in the rating of parents on the TSI did not affect what teachers taught parents. Nevertheless, the fact that, in later studies, parents changed in response to instruction guided by the TSI suggests that teachers were providing the parents with information the parents had not been receiving previously. What did the teachers do differently? How was it that this was not apparent in the earlier study? It appears that, prior to the beginning of Study II, the staff emphasized teaching parents development content in the context of teaching appropriate child centered activities. The teachers were less likely to help the parents understand how to make the most of their interactions around those activities.

Teachers assumed, for the most part, that parents would learn the appropriate ways of interacting with their children through the modeling that

the teachers were providing. The teachers reported that during Study II they began to focus on the parents' deficits that had been identified using the TSI, and for the first time their instruction was specifically geared toward correcting problems in the instructional process of infants and mothers. It was at this time that teachers began to systematically help parents develop competencies in interacting with their children over the broad range of areas that the TSI covers; a range that goes far beyond the developmental appropriateness of activities in which most of the instruction originally focused. Consequently, it is not surprising that parents who were new to the program and parents who had been in the program for some time benefited from exposure to teaching that was geared toward the competencies embodied in the TSI. The impact on the children of parents increasing their competencies in the areas measured by the TSI is also worth considering. Improvements in parents' skills were associated with increases in children's interest and involvement in interaction with their parents. This improvement did not occur simultaneously with the change in parental skills but seemed to lag somewhat behind the parent changes. Nevertheless, it seems likely this change in child involvement occurred as a result of the greater skill with which their parents interacted.

Taken as a whole, these findings suggest that competencies displayed by teachers and parents in working with handicapped infants span a range of skills. These skills include both the ability to select developmentally appropriate activities and the ability to interact with the child in ways that encourage children to explore the world, facilitating interaction with playthings and people. Programmatic activities for parents that emphasize only one or the other fail to provide parents and children with all that they

need in order to have mutually satisfying and maximally productive interactions.

These studies also indicate that the Teaching Skills Inventory holds considerable potential both as a tool for assessing the competencies of parents and professionals and as a guide for intervention with parents. Because the Teaching Skills Inventory is relatively brief and easily rated it can be used routinely in most programs. Finally, the TSI has shown considerable promise as a research tool in intervention programs for parents and their handicapped children.

Dissemination Activities

1. Poster session at annual meeting, American Association on Mental Deficiency, San Francisco, May 1980.

2. Presentation at workshop for teachers of deaf-blind and severely handicapped children sponsored by Nebraska program for Deaf-Blind funded through Mountain Plains Regional Center for Deaf-Blind, July 1979.

3. Methods of competency based parent training at Families and Professionals Working Together: Issues, Concerns and Future Directions. Meyer Children's Rehabilitation Insitute, June 21, 1982.

4. Developmental Psychology Area Committee, University of Nebraska - Omaha, Nebraska.

5. Competency based parent training workshop presented at Regional Course of American Academy of Cerebral Palsy, sponsored by Meyer Children's Rehabilitation Institute, May 28, 1983.

6. Information regarding the Inventory is included in the SETS Course Home Based Services component presented by Barbara Jackson, Infant Program Coordinator. This has been presented at four sites in Nebraska.

7. Approximately 30 copies of the Manual on the rating scales were distributed during 1982.

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LIST OF APPENDICES

APPENDIX A

Version I:	Rating Description
	Rating Form
Version II:	Rating Description
	Rating Form
Version III:	Rating Description
	Rating Form
PT/OT Version:	Rating Description
	Rating Form

Rating System: Parent Teaching Skills Checklist

I. Structure of Session:

1. Discrete versus unstructured session:

1. All tasks presented in a highly structured fashion.
2.
3.
4. Activities presented in a semi-structured fashion.
5.
6.
7. Activities occur in an unstructured fashion. Session is characterized by free flowing development of child tasks.

2. Tracking:

1. Parent is entirely unresponsive to child's interests and moods.
2.
3.
4. Parent is alternately responsive and unresponsive to child's interests and moods.
5.
6.
7. Parent is entirely responsive to child's interests and moods.

II. Antecedents:

1. Developmental appropriateness of verbal instructions:

1. Almost all instructions are entirely developmentally inappropriate.
2.
3.
4. Half of instructions are entirely inappropriate.
5.
6.
7. Almost all instructions are entirely developmentally appropriate.

2. Developmental appropriateness of non-verbal instructions:

1. Almost all instructions are entirely developmentally inappropriate.
2.
3.
4. Half of instructions are entirely inappropriate.
5.
6.
7. Almost all instructions are entirely developmentally appropriate.

3. Clarity of content of verbal components to instructions:

1 Content of instructions is consistently ambiguous or contradictory.
2
3
4 Content of half of the instructions is moderately confusing.
5
6
7 Content of instructions is consistently clear.

4. Clarity of content of non-verbal components to instructions:

1 Physical and tonal cues consistently fail to clarify and emphasize task requirements.
2
3
4 Non-verbal cues fail to communicate task requirements in half the instructions.
5
6
7 Non-verbal cues consistently highlight task requirements.

III. Shaping - Consequences:

1. Physical guidance and prompts; appropriateness of choice of when to use them where there were opportunities for physical guidance or prompts:

1 Parent makes no use of physical guidance or prompts.
2
3
4 Parent makes use of physical guidance or prompts in half possible opportunities.
5
6
7 Parent makes effective use of physical guidance or prompts in all possible opportunities.

2. Prompts or guidance: How effective when used:

1. Parent continually verbal or physically prompts or guides in manner that distracts child.
2
3
4 Parents' use of prompts and guidance distracts child from task half the times they are used.
5
6
7 Parent never distracts child from successful completion of task by the way prompts and guidance are given.

3. Modeling, pointing:

1 Parent never makes effective use of modeling to assist child.
2
3
4 Parent makes effective use of modeling or pointing in half the possible opportunities.
5
6
7 Parent uses modeling whereever needed.

4. Changes task:

1 Constantly changes task inappropriately.
2
3
4 Changes task inappropriately in half the cases.
5
6
7 Never changes tasks inappropriately.

5. Modification of task:

1 Parent never modifies tasks in ways that would assist the child's successful completion of them.
2
3
4 Parent modifies tasks to assist child in half the possible opportunities for modification.
5
6
7 Parent modifies tasks in ways that assist child's accomplishment as needed.

6. Conversion of child behavior into a more complex behavior:

1 Parent misses all opportunities to encourage more complex child response by conversion of a simple response to a complex one.
2
3
4 Parent misses half the opportunities to convert child response into a more complex one.
5
6
7 Parent misses no opportunities to convert child response to a more complex response.

Feedback:

1. Positive feedback (exact count)
2. Corrective feedback (exact count)
3. Intelligibility of feedback: When used:

1 Verbal content of feedback is never clear.
2
3
4 Verbal content is clear about half the time.
5
6
7 Verbal content is always unambiguous, consistent and developmentally appropriate.

4. Non-verbal communications:

1. Non-verbal communications do not emphasize and clarify parent's reaction to child's behavior.
2.
3.
4. Non-verbal communications emphasize and clarify parent's reaction in half instances.
5.
6.
7. Non-verbal communications always emphasize and clarify parent's reaction to child's behavior.

5. Feedback appropriateness: (consider frequency and quality)

1. Feedback is never appropriate to child behavior.
2.
3.
4. Feedback is appropriate in half the instances.
5.
6.
7. Feedback is always appropriate.

IV. Child Responses:

1. Number of tasks presented.
2. Number of correct responses approximations.
3. Child avoids, plays, cries, incorrect responses.
4. Task's developmental appropriateness.
   1. All tasks presented were developmentally inappropriate.
   2.
   3.
   4. Half of the tasks presented were developmentally appropriate.
   5.
   6.
   7. All the tasks presented were developmentally appropriate.
5. The objective of the tasks presented was:
   1. Was not apparent for any tasks.
   2.
   3.
   4. Apparent in about half the tasks.
   5.
   6.
   7. Apparent in all the tasks.
6. Complexity of responses for child's developmental level:
   1. Performance in this sample does not reflect child's optimal level of responding in any cases.
   2.
   3.
   4. Responses reflect child's optimal level of responding in half of the cases.
   5.
   6.
   7. Performance in this sample reflect child's optimal level of responding in all cases.

Date of Tape _____ 1 2 Version I _____

Date of Rating _____

	1st	2nd	Difference
Structure			
1. Discrete			
2. Tracking			
Antecedent			
1. App. verbal			
2. App. non-verbal			
3. Clarity verbal			
4. Clarity non-verbal			
Shaping			
1. Use of physical guidance			
2. Effectiveness of physical guidance			
3. Modeling			
4. Change task			
5. Modification			
6. Conversion			
Feedback			
1. + feedback #			
2. Corrective #			
3. Intelligibility			
4. Non-verbal			
5. Appropriateness			
Child's Response			
1. #			
2. # correct			
3. Child avoids			
4. Dev. appropriateness			
5. Clarity			
6. Complexity			

Rating System: Parent Teaching Skills Inventory

Version II

Steven A. Rosenberg, Ph. D.
Cordelia C. Robinson, Ph. D.
Paula B. Bell, M. A.

December 1977
Revised - September 1979
By: Wood A. Hull, B. A.

Rating System:Parent Teaching Style

I. Structure of Session:

1. Almost all activity during the session was initiated by the parent. It is clear that the parent was in control of the session events.
2.
3. The parent initiated more activities during the session than the child. It appears that the parent is generally in control.
4. A sensitive balance exists between parent initiatives and the child initiatives during the session. A mutual exchange is occurring.
5. The child initiated more activities during the session. It appears that the child was generally in control of the session.
6.
7. The child initiated almost all activities during the session. It is clear that the child was in control of session events.

II. Tracking:

1. Parent is entirely unresponsive to child's interests and moods. Tasks are presented in an uncaring way.
2.
3. The parent is more unresponsive, then responsive to the child's interests and moods.
4. Parent is alternately responsive and unresponsive to child's interests and moods. The parent does well when t[illegible] doing well, but when the child is not doing so well, [illegible]is the parent.
5. In general, the parent is responsive to the child's interest and moods.
6.
7. Parent is entirely responsive to child's interests and moods.

III. Antecedents:

1. The Degree to which the Objective of the Task Presented by the Parent Was Apparent to the Rater.

   1. The objective was not apparent for any ta[illegible]lly [illegible]e tasks were ambiguous or presented too quickly to [illegible] any objective.
   2. The objective was apparent for one-fourth of the tasks.
   3.
   4. The objective was apparent for one half of the tasks.
   5.
   6. The objective was apparent for three-fourths of the tasks.
   7. The objective was apparent for almost every task.

Task's Developmental Appropriateness.

1. All the tasks presented were developmentally inappropriate. Parental task requirments were too difficult and the child was unable to respond appropriately.
2. One fourth of the tasks presented were developmentally appropriate.
3.
4. One half of the tasks presented were developmentally appropriate.
5.
6. Three fourths of the tasks presented were developmentally appropriate.
7. All of the tasks presented were developmentally appropriate.

3. Non-Verbal Task Antecedents.

1. Physical and tonal (voice) cues consistently fail to clarify and emphasize tasks requirements. No matter what the parent says, his/her non-verbal cues are ambiguous or distracting to the child.
2. Three fourths of the non-verbal cues are unclear and confound the task.
3.
4. Non-verbal cues fail to communicate task requirements in half the instructions. For half the tasks non-verbal cues fail to highlight task requirements.
5.
6. Non-verbal cues highlight the task requirements in three fourths of the instances.
7. Non-verbal cues consistently highlight task requirements.

4. Clarity of Content of Verbal Components to Instructions:

1. Content of the instructions are consistently ambiguous or contradicting. Verbal instructions fail to aide the child in task solutions, nor does the rater understand what the appropriate responses should be according to the instructions.
2. Most of the verbal cues are contradictory or ambiguous.
3.
4. Content of half the instructions are moderately confusing. Of all the tasks presented, only half are clear.
5.
6. Content of verbal instructions is usually clear.
7. Content of verbal instructions is consistently clear.

5. Developmental Appropriateness of Verbal Instructions:

1. Almost all instructions are entirely developmentally inappropriate. The verbal instruction was almost never matched to the child's developmental level.
2. One fourth of all instructions are developmentally appropriate.
3.
4. Half the instructions are developmentally appropriate.

5.
6. Three fourths of all instructions are developmentally appropriate.
7. Almost all instructions are entirely developmentally appropriate. It is clear that the child knows what is expected of him/her.

III. Shaping-Consequences

1. Prompts or Guidance: How effective when used:

1. Parent continually verbally or physically prompts or guides in manner that distracts the child. This applies when a prompt would be better than physical guidance or neither is appropriate and it applies to every task presentation.
2. Parent's use of prompts and guidance distract child after approximately one fourth of all task presentations.
3.
4. Parent's use of prompts and guidance distracts child from the tasks half the time they are used.
5.
6. Parent's use of prompts and guidance are effective, after approximately three fourths of all task presentations.
7. Parent never distracts child from successful completion of task by the way prompts and guidance are given. If no prompts or guidance are used, and it is clear that none were needed, then this would be the appropriate rating.

2. Modeling, Pointing/Gesturing:

1. Parent never makes effective use of modeling and pointing or gesturing to assist the child. The child is attending the parent but the parent fails to demonstrate the task being presented, or modeling is unnecessary, or modeling distracts the child.
2. Parent effectively uses modeling and pointing or gesturing in only one fourth of all possible opportunities.
3.
4. Parent effectively uses modeling and pointing or gesturing in half the possible opportunities.
5.
6. Parent effectively uses modeling and pointing or gesturing in three fourths of all possible opportunities.
7. Parent uses modeling and pointing or gesturing where needed. It becomes a spontaneous activity.

3. Changes task:

1. The parent appropriately changes the task inappropriately. The child appears to maximize his play activity when, for no apparent reason, the parent abruptly changes the task just to go on to a new one.
2. The parent appropriately changes the task only one fourth of the time.
3.

4. The parent appropriately changes the task half the time. The parent does not allow the child to fully explore the task at hand.
5.
6. The parent appropriately changes the task three fourths of the time.
7. The parent appropriately changes the task in all instances.

4. Modification of Task:

1. Parent never modifies the tasks in ways that would assist the child's successful completion of them. Either no modification strategies are used, or the strategies used are inappropriate for the presented task.
2. The parent uses appropriate modification strategies in only one fourth of all possible opportunities for modification.
3.
4. The parent uses appropriate modification strategies in half the possible opportunities for modification.
5.
6. The parent uses appropriate modification strategies in three fourths of the opportunities for modification.
7. The parent modifies the task appropriately to assist the child's accomplishments as needed.

5. Conversion of Child Behavior Into More Complex Behavior:

1. The parent misses all opportunities to encourage more complex child responses by the conversion of a simple response to a more complex one.
2. The parent uses only one fourth of all possible opportunities for converting the child's responses into more complex responses.
3.
4. The parent uses half the opportunities to convert the child's responses into more complex ones.
5.
6. The parent uses three fourths of the possible opportunities for converting the child's responses into more complex ones.
7. The parent misses no opportunities for converting child's responses into more complex ones.

IV. Feedback

1. Exact Count of Positive Feedback:

2. Exact Count of Corrective Feedback:

3. Non-Verbal Communications:

1. The parent appears to remain aloof from the child or parental reactions to child's behavior appear to be flat or inappropriate. It certainly appears that the parent is really not interested in interacting with the child. They may not know how to interact with the child at all.

2. The parent's attempts at interaction or his/her nonverbal feedback appear to be stiff and/or forced.
3.
4. The parent wants to interact, shows good intent, but is unsteady during interaction periods.
5.
6. Parent interacts nicely and makes appropriate attempts to communicate approval of on task behavior but becomes a little nervous when child does not respond appropriately.
7. Handles the task situations nicely. Interacts nicely. Shows very appropriate non-verbal approval of child's behavior.

4. Feedback Appropriateness: Consider Frequency and Quality:

1. Feedback is never appropriate to child behavior. Both the frequency and quality of the feedback is poor, if it exists at all. It is inconsistent, and developmentally inappropriate.
2. Feedback is appropriate in quantity and quality one fourth of the time.
3.
4. Feedback is appropriate in quantity and quality half the time.
5.
6. Feedback is appropriate in quantity and quality three fourths of the time.
7. Feedback is consistently appropriate. Frequency of occurence and the quality used are excellent.

V. Child Responses.

1. Number of Tasks Presented:

2. Number of Correct Responses or Approximations to Correct Responses:

3. Child's Interest in Presented Tasks:

1. Child continually plays independent of the parent, cries, fusses etc. during almost all task presentations. It appears that the child is not interested in any of the task presented. If interest is shown, it is only fleeting.
2.
3. Child displays a moderate amount of interest in the task presented. Attempts to respond correctly, but quickly diverts attention upon any failures.
4. Child is interested in and makes a good effort to respond correctly to half of the tasks presented. Moderately upset by any failures.
5.
6. Child maintains a consistent interest during three fourths of the presented tasks. Shows little frustration after failure to respond correctly.
7. Child is very consistent in his/her to the interest attends well to the parent and tries to respond correctly. Failure frustration is at a minimum.

Revised: September 21, 1979
By: Cordelia Robinson, Ph.D
Steve Rosenberg, Ph.D.
Wood Hull, B.A.

Version II
VT Rating Form

Child _____ Primary Rater _____

Date of Tape _____ Reliability Rater _____

Date of Rating _____

	1 Rating	Reliability Rating	Difference
STRUCTURE			
1. Discrete			
2. Tracking			
ANTECEDENT			
1. Clarity of Task Objective			
2. Task Dev. Appropriateness			
3. Non-Verbal Task Antecedent			
4. Clarity Verbal			
5. Dev. Appropriateness Verbal			
SHAPING			
1. Effectiveness of physical guidance and prompts			
2. Modeling			
3. Changes task			
4. Modification			
5. Conversion			
FEEDBACK			
1. + feedback #			
2. Corrective feedback #			
3. Non-Verbal			
4. Appropriateness			
CHILD'S RESPONSE			
1. # Task			
2. # Correct			
3. Task interest			

Rating System: Teaching Skills Inventory

Version III

Steven A. Rosenberg, Ph.D.
Cordelia C. Robinson, Ph.D.
Paula B. Bell, M.A.
Wood A. Hull

December 1977
Final Revision: MARCH 1981

Revision #3: March 1981

Rating System: Teaching Skills Inventory

I. Structure

1. Adult Initiated vs Child Initiated Activities

1. Almost all activities were initiated by the adult
2. Most of the activities were initiated by the adult
3. Less than half of the activities were initiated by the child
4. An equal number of activities were initiated by the adult and child
5. More than half of the activities were initiated by the child
6. Most of the activities were initiated by the child
7. Almost all of the activities were initiated by the child

II. Tracking

1. Adult Sensitivity to Child

1. The adult is almost never sensitive to the child's interests and moods
2. The adult is inappropriately sensitive most of the time.
3. The adult is appropriately sensitive less than half of the time
4. The adult is appropriately sensitive half of the time
5. The adult is appropriately sensitive more than half of the time
6. The adult is appropriately sensitive most of the time
7. The adult is appropriately sensitive almost all of the time

III. Instructional Skills

1. Clarity of Activity Objectives to the Rater

1. The objectives were almost never clear
2. Most of the objectives were unclear

3. Less than half of the objectives were clear
4. Half of the objectives were clear
5. More than half of the objectives were clear
6. Most of the objectives were clear
7. Almost all of the objectives were clear

2. Developmental Appropriateness of the Activities

1. Almost all of the activities were developmentally inappropriate
2. Most of the activities were developmentally inappropriate
3. Less than half of the activities were developmentally appropriate
4. Half of the activities were developmentally appropriate
5. More than half of the activities were developmentally appropriate
6. Most of the activities were developmentally appropriate
7. Almost all of the activities were developmentally appropriate

3. Appropriateness of Verbal Instruction

1. Almost all of the verbal instruction was inappropriate
2. Most of the verbal instruction was inappropriate
3. Less than half of the verbal instruction was appropriate
4. Half of the verbal instruction was appropriate
5. More than half of the verbal instruction was appropriate
6. Most of the verbal instruction was appropriate
7. Almost all of the verbal instruction was appropriate

4. Appropriateness of Non-Verbal Instruction

1. Almost all of the non-verbal instruction was inappropriate
2. Most of the non-verbal instruction was inappropriate
3. Less than half of the non-verbal instruction was appropriate

4. Half of the non-verbal instruction was appropriate
5. More than half of the non-verbal instruction was appropriate
6. Most of the non-verbal instruction was appropriate
7. Almost all of the non-verbal instruction was appropriate

5. Adjustment of the Complexity of the Activities

1. The adult almost never adjusts activity requirements in the direction consistent with the child's responses/or the adult misses significant opportunities to appropriately modify or convert a given activity.
2. The adult uses inappropriate modification/conversion strategies most of the time
3. The adult uses appropriate modification/conversion strategies less than half of the time
4. The adult uses appropriate modification/conversion strategies half of the time
5. The adult uses appropriate modification/conversion strategies more than half of the time
6. The adult uses appropriate modification/conversion strategies most of the time
7. The adult uses appropriate modification/conversion strategies almost all of the time

IV. Feedback

1. Description: Check one

Mostly Verbal

Mostly Non-Verbal

Both

2. Count of Positive Feedback

3. Count of Verbal Corrective Feedback

4. Appropriateness of Feedback: Consider frequency and quality

   1. Almost all feedback was inappropriate
   2. Most of the feedback was inappropriate
   3. Less than half of the feedback was appropriate
   4. Half of the feedback was appropriate
   5. More than half of the feedback was appropriate
   6. Most of the feedback was appropriate
   7. Almost all of the feedback was appropriate

V. Child Responses

1. Count of Activities

2. Frequency of Criterion Responses

3. Child Participation in the Interaction

   1. The child almost never participates in any activity. He/She continually plays independently of the adult, cries, fusses, etc.
   2. The child participates in a few of the activities
   3. The child participates in less than half of the activities
   4. The child participates in half of the activities
   5. The child participates in more than half of the activities
   6. The child participates in most of the activities
   7. The child participates in almost all of the activities

DYAD_____ Primary Rater_____

Date of Tape_____ Reliability Rater_____

Date of Rating_____

Tape Quality

	Poor		Ave.		Excellent
Audio:	1	2	3	4	5
Video:	1	2	3	4	5

	Primary Rating	Reliability Rating	Diff.
I. Structure			
1. Adult Initiated vs Child Initiated Activities	_____	_____	_____
II. Tracking			
1. Adult Sensitivity to child	_____	_____	_____
III. Instructional Skills			
1. Clarity of Activity Objectives	_____	_____	_____
2. Dev. Appropriateness of the Activities	_____	_____	_____
3. Appropriateness of Verbal Instruction	_____	_____	_____
4. Appropriateness of Non-Verbal Instruction	_____	_____	_____
5. Adjustment of Activity Complexity	_____	_____	_____
IV. Feedback			
1. Type: Check One			
Mostly Verbal_____			
Mostly Non-Verbal_____			
Both _____			
2. Frequency of + Feedback	_____	_____	_____
3. Frequency of Verbal Corrective Feedback	_____	_____	_____
4. Appropriateness of Feedback	_____	_____	_____
V. Child Responses			
1. Number of Activities	_____	_____	_____
2. Number of Criterion Responses	_____	_____	_____
3. Child Participation in the Interaction	_____	_____	_____

VTR COUNTS

Activity	Criterion Response	Positive Feedback	Corrective Feedback

Protocol Therapist's Version

I. Structure:

1. Adult Initiated vs Child Initiated Activities: There is no ideal proportion for adult initiated versus child initiated activities. We wish only to describe the extent to which either member of the pair (dyad) tends to initiate activities within the interaction. An activity is defined as any material or procedure that is designed to stimulate learning. This includes toys or interactional games. This item relates, in part, to adult stylistic differences and differences in each child's developmental ability to make choices in activity selection.

1. Almost all activities were initiated by the adult.
2. Most of the activities were initiated by the adult.
3. More than half of the activities were initiated by the adult
4. An equal number of activities were initiated by the adult and child.
5. More than half of the activities were initiated by the child
6. Most of the activities were initiated by the child
7. Almost all of the activities were initiated by the child

II. Responsiveness (tracking):

1. Adult Utilizes Child's Expression of Interest: This item requires a judgement about the adult's responsiveness and sensitivity to the child's interests and moods during each activity. The assumption is that a decision to switch from one activity to another in a teaching situation with an infant or toddler should be based upon the child's expression of interest in the activity at hand. Examples of appropriate responsiveness would be when the adult 1)picks up on signals from the child that a) "I like this game" and incorperates motor goals around that toy or game or b) "I don't like this" or "I'm tired of this game" and tries an alternative or modifies the activity, 2) gives the child an opportunity to indicate interest by offering two toys, 3) changes the activity when the child's play has become excessively repetitive or nonproductive. Examples of inappropriate (or lack of) responsiveness would be when the adult 1) abruptly changes an activity the child was involved in, perhaps because the adult has a pre-determined agenda regardless of the child's involvement, 2) keeps repeating an activity after

the child loses interest or persisting with an uninteresting or aversive activity and perhaps even using restraint and physical guidance as a means for eliciting activity related behavior, 3) allows the child to entirely dominate the interaction in a negative manner by making no new demands on him because he refuses new materials.

1. The adult is almost never responsive to the child's interests and mood
2. The adult is unresponsive most of the time
3. The adult is unresponsive more than half of the time
4. The adult is appropriately responsive half of the time
5. The adult is appropriately responsive more than half of the time
6. The adult is appropriately responsive most of the time
7. The adult is appropriately responsive almost all of the time

III. Instructional Skills

1. Clarity of the Activity Objective to the Rater: This requires that the objective of the activity be clear to you, the rater. Whether or not the child understands what to do is scored under verbal and/or non-verbal instruction. Hopefully the objective will be clear to you and the child. However, in some cases the objective may be apparent to you but because of poor instruction the child has no idea what is expected, in which case the parent would still receive a high score. In other cases, the child may know he is supposed to do but you, the rater, may have no idea what the objective of the activity is, in which case the parent is scored low.

1. The objective was not apparent for almost any activity. The activities could be ambiguous or occur too quickly to establish an objective.
2. The objective was not apparent for most of the activities
3. The objective was not apparent for more than half of the activities
4. The objective was apparent for half of the activities
5. The objective was apparent for more than half of the activities
6. The objective was apparent for most of the activities
7. The objective was apparent for almost all of the activities

2. Developmental Appropriateness of the Activities: This item requires a judgement based on the match made between the requirements of the activities selected by parent or child and the child's developmental level and physical capabilities. A good match would be picking a toy or activity appropriate for the child's motor, cognitive, vision, and/or hearing level and presenting it

appropriately for the child's motor level. Consider gross positioning and handling skills in terms of developmental level (execution would be under Non-Verbal Instruction).

1. Almost all activities were developmentally inappropriate
2. Most of the activites were developmentally inappropriate
3. More than half of the activities were developmentally inappropriate
4. Half of the activities were developmentally appropriate
5. More than half of the activities were developmentally appropriate
6. Most of the activities were developmentally appropriate
7. Almost all of the activities were developmentally appropriate

3. Appropriateness of Verbal Instruction: Verbal instruction should be clear, given in an informative style, and appropriate for the activity. Informative style refers to phrasing instruction that contains specific information that highlights the objective of the activity, such as "let's put the peg in this hole" rather than "put it here" or "let's roll to get the ball" rather than "do it, do it." Appropriate verbal instruction should be consistent with the activity, the child's behavior, developmental level, and sensory impairment level. The use of verbal instruction is not always necessary, and may actually distract the child from the activity. On the other hand, failure to use verbal instruction when needed is also inappropriate.

1. Almost all verbal instruction was inappropriate. Content was unclear noninformative, or not appropriate for the activity and/or quantity was grossly inappropriate.
2. Most of the verbal instruction was inappropriate
3. More than half of the verbal instruction was inappropriate
4. Half of the verbal instruction was appropriate
5. More than half of the verbal instruction was appropriate
6. Most of the verbal instruction was appropriate
7. Almost all of the verbal instruction was appropriate

4. Appropriateness of Non-Verbal Instruction: Non-verbal instruction includes modeling, pointing, gesturing (minimal assistance), prompting (moderate assist), and physical guidance (maximal assist). Execution of physical handling is also considered here, but is not primary. Consider both quality and quantity. Quality includes using non-verbal instruction techniques that 1) assist in the child's successful participation in the activity, 2) represent the least amount of assistance needed (ie. not using physical guidance if gesturing will do), and 3) are consistent with the child's level of functioning (cognitive, visual, motor). Quantity means capitalizing on opportunities to use these techniques (missed opportunities reduce the score), but at the same time not using them at all if not needed, especially if they are intrusive and interfer with the child's active participation.

1. Almost all non-verbal instruction was inappropriate. The use of non-verbal cues, physical guidance, prompts, and modeling was unclear, inconsistent with the activity, distracting, or intrusive
2. Most of the non-verbal instruction was inappropriate
3. More than half of the non-verbal instruction was inappropriate
4. Half of the non-verbal instruction was appropriate
5. More than half of the non-verbal instruction was appropriate
6. Most of the non-verbal instruction was appropriate
7. Almost all of the non-verbal instruction was appropriate

5. Adjustment of the Complexity of an Activity: Adjustment refers to simplifying and activity (modification) or increasing the complexity of an activity (conversion). A task or activity can be simplified by changing 1) the materials, 2) the requirements of the task, or 3) the child's response. Examples include using a wedge when working on head control rather than from a completely prone position, dropping blocks into a container instead of stacking when working on voluntary release, or walking a few steps rather than across the room. Furthermore, the strategy of adjusting the activity requirements downward is frequently preferred to physically guiding the child through the task (depending on movement patterns the child is or is not using). This is based on the assumption that infants and toddlers learn best through active trial and error exploration.

Increasing the complexity is also important for maximizing learning. Ideally, the requirements of an activity should be aimed at the upper levels of the child's abilities. If the child is easily accomplishing a task, it would be appropriate to make it slightly harder. Creating more complex situations would include the use of generalization techniques where the adult extends the activity to other similar situations. It is also important to keep in mind that these "challenges" should build upon a child's current expression of interest and skills.

In sumary, we are concerned only with evaluating appropriate attempts at modification or conversion. Missed opportunities lowers the score as well as inappropriate attempts.

1. The adult almost never adjusts activity requirements in the direction consistent with the child's responses and/or the adult misses significant opportunities to appropriately modify or convert a given activity.
2. The adult uses inappropriate modification/conversion strategies most of the time.
3. The adult uses inappropriate modification/conversion strategies more than half of the time
4. The adult uses appropriate modification/conversion strategies half of the time
5. The adult uses appropriate modification/conversion strategies more than half of the time
6. The adult uses appropriate modification/conversion strategies most of the time
7. The adult uses appropriate modification/conversion strategies almost all of the time

IV. Feedback:

1. Feedback Appropriateness: This rating reflects the quantity and quality of the feedback. In general, it is assumed that younger children or those with a short attention span or poor motivation require a more exact ratio between feedback frequency and the child's responses. If the proportion of feedback to the child's responses is good, but the quality is poor, the rating would reflect a value in between the two. If the frequency is low, but the quality is good the rating would also fall between the two. In trying to decide which is more appropriate, when both are not present, consider the child being viewed. Some children provide their own feedback and only need quality feedback from the adult; others do not. Quality feedback is also informative such as "good sitting"

or "I like the way you put Ernie in the car" rather than "good boy". Also consider voice inflection and animation.

1. Feedback is almost never appropriate to the child's behavior. Both the frequency and quality are poor, if they exist at all.
2. Feedback is inappropriate most of the time
3. Feedback is inappropriate more than half of the time
4. Feedback is appropriate half of the time
5. Feedback is appropriate more than half of the time
6. Feedback is appropriate most of the time
7. Feedback is appropriate almost all of the time

V. Child Responses:

1. Child's participation in the Interaction: This item requires a judgement about the child's participation in the activities. The child's reactions are generally indicative of the overall interaction success. Ideally, when interactions employ interesting activities the child should have enough motivation to actively participate. Sometimes this is not the case. Since children have a tendency to be unpredictable, base your rating on what appears to be the child's current level of involvement. Important questions to consider are: Does he/she appear to frustrate easily? Does he/she appear distractible? Can he/she maintain a sustained interest during most of the activities? Interest is being defined as attention to the activities and active participation regardless of physical capabilities.

1. The child almost never participates in any activity. He/she continually plays independently of the adult, cries, fusses, etc.
2. The child participates in a few of the activities
3. The child participates in less than half of the activities
4. The child participates in half of the activities
5. The child participates in more than half of the activities
6. The child participates in most of the activities
7. The child participates in almost all of the activites

VT Rating Form: Teaching Skills Inventory

Therapist's Version

DYAD_____ Primary Rater_____

Date of Tape_____ Reliability Rater_____

Date of Rating_____

	Primary Rating	Reliability Rating	Diff.
I. Structure			
A. - 1. Adult Initiated vs Child Initiated Activities	_____	_____	_____
II. Responsiveness			
B. - 1. Adult Utilizes Child's Expression of Interest	_____	_____	_____
III. Instructional Skills			
C. - 1. Clarity of Activity Objectives	_____	_____	_____
D. - 2. Dev. Appropriateness of the Activities	_____	_____	_____
E. - 3. Appropriateness of Verbal Instruction	_____	_____	_____
F. - 4. Appropriateness of Non-Verbal Instruction	_____	_____	_____
G. - 5. Adjustment of Activity Complexity	_____	_____	_____
IV. Feedback			
H. - 1. Appropriateness of Feedback	_____	_____	_____
V. Child Response			
I. - 1. Child Participation in the Interaction	_____	_____	_____

APPENDIX B

Rating Instructional Manual

Version III

Teaching Skills Inventory

An Instruction Manual for Professionals

Cordelia Robinson Ph.D.
Wood A. Hull
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This manual has been designed as part of an instructional package intended to introduce professional staff, working with families, to a comprehensive process for evaluating parent-child interactions. This manual contains the written material to be covered in a discussion oriented video-tape training program. Our past research has indicated that when professionals are working with parents and children jointly most of the instructional time is spent discussing objectives for the child's development and current progress. Only a small percentage of the instruction covers the parent's teaching skills, and this is usually to reinforce appropriate skills already in the parent's repertoire. Because parents are the most influential persons contributing to the overall development of their children, we feel that it would be advantageous for parents to incorporate a variety of useful teaching skills into their repertoire. These skills are potentially useful not only during educational activities, but during the general caretaking activities that parents encounter each and every day. These activities include feeding, dressing, bathing, freeplay and many others.

In this manual you will find descriptions of nine different teaching skills separated into one of five general areas. The interactional skills cover, Structure of the Interaction, Sensitivity to the Child, Basic Instructional Skills, Feedback,and Child Responses. Parents who have these skills can engineer a child's behavior in a manner consistent with the educational and developmental objectives set by you. Each skill is defined, followed by examples along with a guide to evaluating parent performance. The actual instructional mechanisms employed by different professionals are not being discussed. We are attempting to use this manual as an interdisciplinary training device. The skills being discussed are hopefully relevant to any professional person who works with parents and children on a joint basis. The important goal is one of instructing parents in a way that will enable them to implement the educational and developmental objectives being presented by you during their daily routines in a manner that is most consistent with their child's development.

The authors hope this manual will allow professionals to identify and share skills with their families and other professionals that may be used while playing with children. The creation of an instructional package that transcends discipline boundaries is an important goal. We are hopeful of being able to share our ideas with you and we appreciate your willingness to be involved in this training. Pleasant Reading!

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I. Structure:

1. Adult Initiated vs Child Initiated Activities: The extremes in this dimension, highly structured activities versus mostly unstructured activities, in part relate to adult stylistic differences and differences in each child's developmental ability to make choices in activity selection. There is no ideal proportion for adult initiated versus child initiated activities. We wish only to describe the extent to which either member of the dyad tends to initiate activities within the interaction. (We are defining activity as any material or procedure that is designed to stimulate learning. This includes toys, art material, or interactional games, such as "peek-a-boo"). Each activity should be recorded with as brief a description as possible, along with an indication of who introduced it (see p. 17). The symbols to be used are P for parent and C for child. The rating of this item is to be based solely on the proportion most closely associated with the frequency of adult initiated versus child initiated activity.

1. Almost all activities were initiated by the adult
2. Most of the activities were initiated by the adult
3. Less than half of the activities were initiated by the child
4. An equal number of activities were initiated by the adult and child
5. More than half of the activities were initiated by the child
6. Most of the activities were initiated by the child
7. Almost all of the activities were initiated by the child

II. Tracking:

2. Sensitivity to Child: This item requires a judgement about the adult's sensitivity to the child's interests and moods during each activity. Implicit within this rating is a judgement as to whether the adult is appropriately sensitive. A decision to switch from one activity to another in a teaching situation with an infant, toddler, or pre-schooler should be based upon the child's expression of interest in the activity at hand. If a child is involved in an activity in a reasonably complex manner it is not appropriate to introduce a different activity or to abruptly change the direction of the current activity. This error is most likely to occur when the adult is bored with the child's play, or has a preconceived notion of how the child should play. When the child's play has become excessively repetitive or he demonstrates a loss of interest, then it would be appropriate to change the activity. Inappropriate sensitivity would be typified by persisting with an uninteresting or aversive activity and perhaps even using restraint and physical guidance as a means for eliciting activity related behavior. Inappropriate sensitivity would also include allowing the child to entirely dominate the interaction in a negative manner by making no new demands upon him because he refuses new materials.

Ratings should be based on the overall estimate of an adult's sensitivity to the child during the interaction. Important questions to consider are: Is the parent aware of the child's response to the activity? If the child appears bored, does the adult move to a new activity, allow the child to select a new activity, or persist with

II. Tracking: (Cont.)

the present activity. All of these questions relate to an adult's ability to recognize when a child is finished with an activity and when the child is attempting to manipulate the adult in a negative manner.

1. The adult is almost never sensitive to the child's interests and moods
2. The adult is inappropriately sensitive most of the time
3. The adult is appropriately sensitive less than half of the time
4. The adult is appropriately sensitive half of the time
5. The adult is appropriately sensitive more than half of the time
6. The adult is appropriately sensitive most of the time
7. The adult is appropriately sensitive almost all of the time

III. Instructional Skills:

1. Clarity of the Activity Objective to the Rater: This item requires a judgement about the clarity of the objective for each activity. Particular problems may arise when rating visual fixation, visual tracking, and localization activities. It is very important for the objective of the activity to be clear to you. If you cannot identify the objective, or even if you have difficulty deciding, then consider the fact that the objective must be clear to the child. Be aware that the parent may ask for one thing and then give gestural cues or arrange materials in such a way as to be asking for something different.

1. The objective was not apparent for almost any activity. The activities could be ambiguous or occur too quickly to establish an objective.
2. The objective was not apparent for most of the activities
3. The objective was apparent for less than half of the activities
4. The objective was apparent for half of the activities
5. The objective was apparent for more than half of the activities
6. The objective was apparent for most of the activities
7. The objective was apparent for almost all of the activities

2. Developmental Appropriateness of the Activities: This item requires a judgement based on the match made between the requirements of the activities selected by parent or child and the child's developmental level and physical capabilities. In order to make as accurate a judgement as possible, it would be essential for the rater to have some knowledge of the child's capabilities at the time of the taping. If such information is not available, use your best judgement and seek consultation where necessary.

1. Almost all activities were developmentally inappropriate
2. Most of the activities were developmentally inappropriate
3. Less than half of the activities were developmentally appropriate
4. Half of the activities were developmentally appropriate
5. More than half of the activities were developmentally appropriate
6. Most of the activities were developmentally appropriate
7. Almost all of the activities were developmentally appropriate

3. Appropriateness of Verbal Instruction: This item requires an evaluation of the adult's verbal instruction using the following principles: Informative Content, Clarity, and Appropriateness in relation to the activity. This item makes a distinction between verbal instructions that contain specific information that highlights the objective of the activity, such as "let's give the baby a drink", and noninformative directions such as "do it, do it, do it."

Equally important in the evaluation of an adult's verbal instruction is the appropriateness of that instruction. Verbal instruction should be consistent with the activity, the child's behavior, developmental level, and sensory impairment level. The use of verbal instruction is not always necessary, and may actually distract the child from the activity. For example, when attempting to elicit a sound localization response, idle chatter or continuous verbal instruction may be distracting. A child needs to have an opportunity to distinguish where the sounds are coming from in the environment and to try to tie them with the activity. Useful verbal instruction can be vitally important to the child, however recognition of the need to maintain silence is equally important. You will be required to base your rating on the interaction of these three principles. First, is the instruction clear? Second, is it given in an informative/questioning style? Third, does it appear to be appropriate for the activity? Base your rating on the derived answers.

1. Almost all verbal instruction was inappropriate. Content was unclear, noninformative, or not appropriate for the activity.
2. Most of the verbal instruction was inappropriate

3. Less than half of the verbal instruction was appropriate
4. Half of the verbal instruction was appropriate
5. More than half of the verbal instruction was appropriate
6. Most of the verbal instruction was appropriate
7. Almost all of the verbal instruction was appropriate

4. Appropriateness of Non-Verbal Instruction: This item requires an evaluation of the adult's ability to use the following techniques appropriately: physical guidance and prompts, modeling, pointing and gesturing. The use of these techniques should be consistent with the child's needs during the activities. The use of physical guidance and prompts should be considered with reference to the occurance of opportunities for their use. The rater must also consider whether these techniques were used in ways that assisted the child's participation in the activity, or whether what was done intruded upon the child and interfered with her/his active participation. Likewise, the appropriate use of modeling and pointing as a teaching strategy should be consistent with the child's use of imitation. If the child is responding with some very simple gestures then this would make pointing a functional cue. For modeling to be effective, the child must also be attending well to the activity. Again this rating is to be based on the adult's combined use of these techniques and a judgement of the techniques considered most appropriate for the activity and the child's developmental level.

1. Almost all non-verbal instruction was inappropriate. The use of non-verbal cues, physical guidance, prompts, and modeling was unclear, inconsistent with the activity, distracting, or intrusive
2. Most of the non-verbal instruction was inappropriate
3. Less than half of the non-verbal instruction was appropriate
4. Half of the non-verbal instruction was appropriate
5. More than half of the non-verbal instruction was appropriate
6. Most of the non-verbal instruction was appropriate
7. Almost all of the non-verbal instruction was appropriate

5. Adjustment of the Complexity of an Activity: This item requires an evaluation of the adult's use of appropriate modification and conversion strategies during the interaction. Modification is being defined as a simplification of activity requirements to a level consistent with the child's abilities. Modification would include the removal of one or more parts of the activity which appears to be creating problems for the child.

Within the definition of modification we are making the assumption that the most appropriate strategy for teaching a young child is one of arranging situations so as to maximize active trial and error exploration rather than providing guided performance on the part of the individual child. This principle is felt to apply particularly to activities where any one of several approaches might be successful so one has the freedom to let the child discover his own way of accomplishing the objective. An example might be the use of a string attached to a toy as a tool to get that toy. The objective is to get the toy, and the child could use a strategy of pulling the string hand over hand or, perhaps pulling once and extending one's arm back. Either strategy will work, and the child may discover his own best approach. It may be that the child cannot grasp string as such, but he/she can grasp strings with circular attachments. If the physical characteristics of the materials being used for an activity can be modified in this way, this enables the child to best exploit their properties. This can also be considered an appropriate modification strategy.

Another example can be seen in a motor imitation activity. The rater should note whether the adult used the strategy of changing the modeled behavior to one she has seen her child perform when efforts

to elicit imitation of a novel behavior are unsuccessful. Another example, for a motorically involved child to successfully place cubes in a cup it may be necessary to tip the cup forward rather than letting it lie flat on the table. Modification strategies, such as shaping, should always be used in place of actual physical guidance for the child, as long as it appears that the child would be able to make the response on his/her own. The strategy of allowing exploration is especially important with infants and toddlers who generally resist attempts to physically guide them through activities. Thus, the strategy is one of adjusting activity requirements downward rather than physically guiding the child through a new behavior.

Conversion is being defined as an increase in the complexity of activity requirements to the upper levels of the child's abilities. Creating more complex situations would include the use of generalization techniques where the adult extends the activity to other similar situations. Within the definition of conversion we are evaluating the adult's abilities to challenge the child to perform more complex responses after completion of simple ones. The adult must not be afraid to extend the child's abilities as far as possible. However, the adult must make the correct match between the child's developmental level and the "challenge" presented. Within this context, a "challenge" is a situation which builds upon a child's current expression of interest and skills. For example, a child is demonstrating the functional use of a comb on himself, the adult might present a doll to provide a functional use activity in what becomes a more complex situation.

An important point to remember when evaluating these techniques is to pay close attention to what the child is doing, particularly in terms of interest in the activity. Ratings should be based not only on successful modification and conversion strategies used by the adult, but any appropriate attempt at modifying or converting a given activity regardless of the success of that strategy given the unpredictability of children. We are concerned only with evaluating appropriate attempts at modification or conversion. Success should not be considered equivalent to appropriateness. Missed opportunities or inappropriate attempts at using these techniques are our prime concern for training adults: We should build on their successes as a means of providing appropriate training.

1. The adult almost never adjust activity requirements in the direction consistent with the child's responses and/or the adult misses significant opportunities to appropriately modify or convert a given activity.
2. The adult uses inappropriate modification/conversion strategies most of the time
3. The adult uses appropriate modification/conversion strategies less than half of the time
4. The adult uses appropriate modification/conversion strategies half of the time
5. The adult uses appropriate modification/conversion strategies more than half of the time
6. The adult uses appropriate modification/conversion strategies most of the time
7. The adult uses appropriate modification/conversion strategies almost all of the time

IV. Feedback:

1. Count of Positive Input to Child: This item requires a count of all forms of positive input given to the child in relation to each activity. Positive input would include praise, descriptive feedback about an activity, and positive physical contact between adult and child. Any attempt at positive input would be included in this category. Try to make your descriptions of this input as clear as possible (see p. 17).

2. Count of Verbal Corrective Input to the Child: This item requires a count of any verbal input to the child that is meant to redirect the child's behavior. Corrective input can be positively or negatively toned. For example, if a child is pointing to or naming a picture of a ball incorrectly, the adult might respond, "No, this is not a spoon, it is a ball" in a warm positive manner or in a harsh manner. The adult may also respond by saying a simple "No." Record all instances of verbal corrective input regardless of the positive or negative tones.

3. Input to Child's Performance: Check One

Mostly Verbal_____

Mostly Non-Verbal_____

Equal Combination of Verbal/Non-Verbal_____

4. Feedback Appropriateness: This rating reflects the proportion of instances of feedback to child responses and the quality of the feedback. In general, it is assumed that younger children require a more exact ratio between feedback frequency and the child's responses. If the proportion of feedback to the child's responses is good, but the quality is poor, the rating would reflect a value in between the two. If the frequency is low, but the quality is good the rating would also fall between the two. In trying to decide which is more appropriate, when both are not present, consider the child being viewed. Some children provide their own feedback and only need quality feedback from the adult; Others do not.

1. Feedback is almost never appropriate to the child's behavior. Both the frequency and quality of feedback are poor, if they exist at all.
2. Feedback is inappropriate most of the time
3. Feedback is appropriate less than half of the time
4. Feedback is appropriate half of the time
5. Feedback is appropriate more than half of the time
6. Feedback is appropriate most of the time
7. Feedback is appropriate almost all of the time

V. Child Responses:

1. Frequency of Activities Occurring Within the Interaction: This item requires a count of the frequency of activities that occur during the interaction. An activity is being defined as any materials or procedures that are designed to stimulate learning; this includes toys, art materials, and interactional games such as "peek-a-boo." Along with the brief description of the activity you should include the following: Who initiated it and indications of how the complexity of the activity increased or decreased with reference to the entry level at which the activity began. Refer to example score sheet p. 17. Each time the parent or child initiates a new activity it should be recorded. If the parent or child returns to a previous activity it should be recorded as a new activity.

2. Frequency of Criterion Responses or Approximations to Criterion Responses: This item involves a count of the frequency of child responses that are at criterion performance or are approximations to the criterion for a given activity. The correctness of a response is determined by the activity objective. If the adult asks the child to place each peg in a peg board then each peg the child places in the board would be counted as one criterion response, as would any approximation to placing the peg in the board. Some adults will begin a peg board activity by asking the child to place "this one in, and this one," etc. or "let's put in two pegs." While you are recording these responses, be sure to indicate when the adult has simplified the activity. Refer to example score sheet p. 17. When there is a discrepancy between the adult's request and the apparent objective of the activity, use your best judgement in scoring criterion responses.

Do not record as criterion responses child behaviors that are not in response to adult input. There will also be activities where no criterion response exist, so use your best judgement in scoring child responses during these activities.

3. Child's Participation in the Interaction: This item requires a judgement about the child's participation in the activities. The child's reactions are generally indicative of the overall interaction success. Ideally, when interactions employ interesting activities the child should have enough motivation to actively participate. Sometimes this is not the case. Since children have a tendency to be unpredictable, base your rating on what appears to be the child's current level of involvement. Important questions to consider are; does he/she appear to frustrate easily? Does he/she appear distractible? Can he/she maintain a sustained interest during most of the activities? Interest is being defined as attention to the activities and active participation regardless of physical capabilities.

1. The child almost never participates in any activity. He/she continually plays independently of the adult, cries, fusses, etc.
2. The child participates in a few of the activities
3. The child participates in less than half of the activities
4. The child participates in half of the activities
5. The child participates in more than half of the activities
6. The child participates in most of the activities
7. The child participates in almost all of the activities

C: Child Initiation

Example Score Sheet

P: Parent Initiation

Activity	Criterion Response	Positive Input	Corrective Input
1.- Pegboard P			
Pegs in C			
Pegs out P	1	(out) lll	Don't Chew
2.- Car P			
Make it go P	1	(ok) 1	
What does a Car			
Do P			
3.- Blocks & Container			
C			
Stacking C		(on) lll	
Dumping C		(good) llllll	Stop throwing
Make train P	1	(choo-choo)1	